

(Channel 165, 5825MHz, 802.11a)

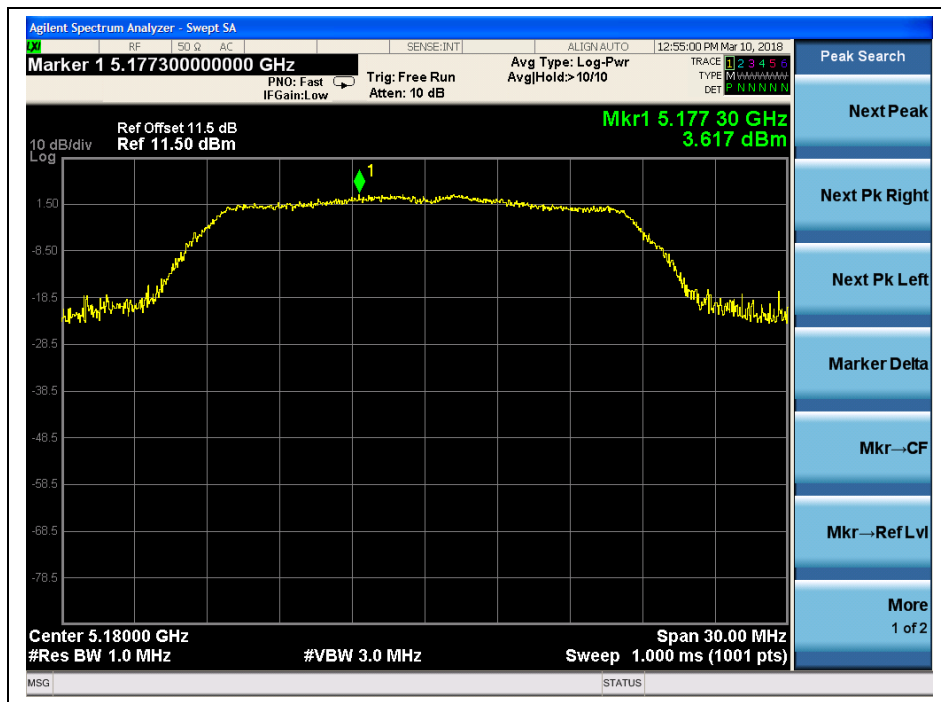


802.11n (HT20) Test mode

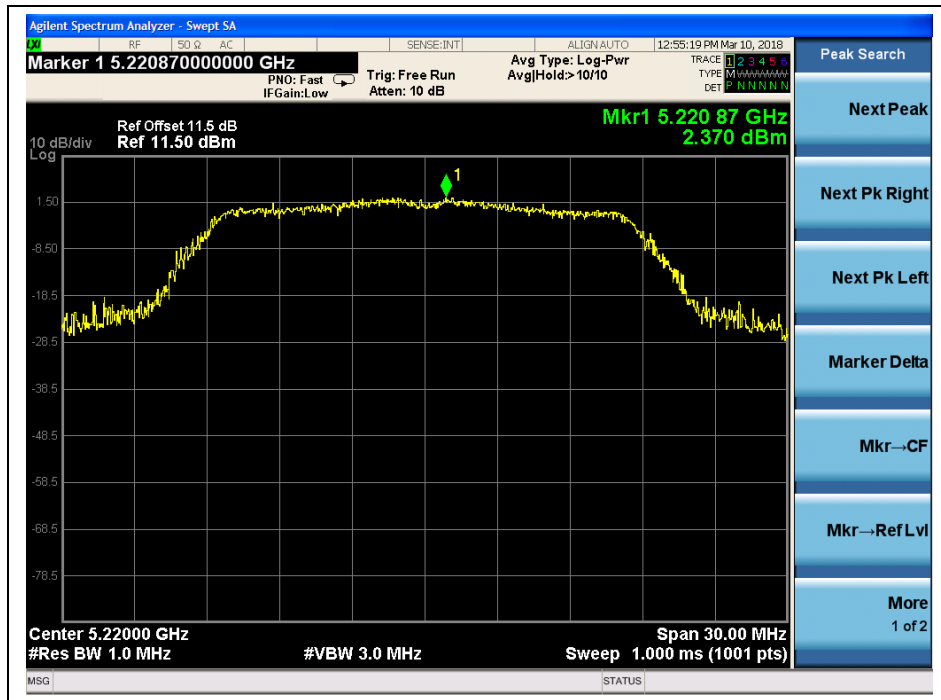
A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	3.62	11	PASS
44	5220	2.37		
48	5240	2.37		
52	5260	1.43		
60	5300	0.98		
64	5320	0.93		
100	5500	0.66		
116	5600	1.84		
144	5720	2.44		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
149	5745	-1.22	30	PASS
157	5785	-1.37		
165	5825	-1.78		

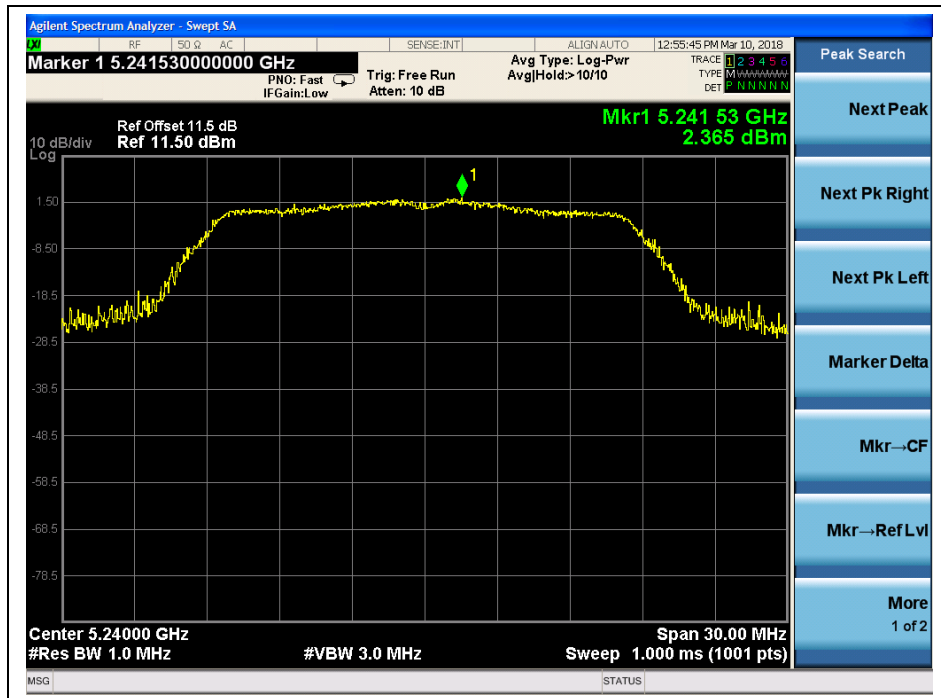
B. Test Plots



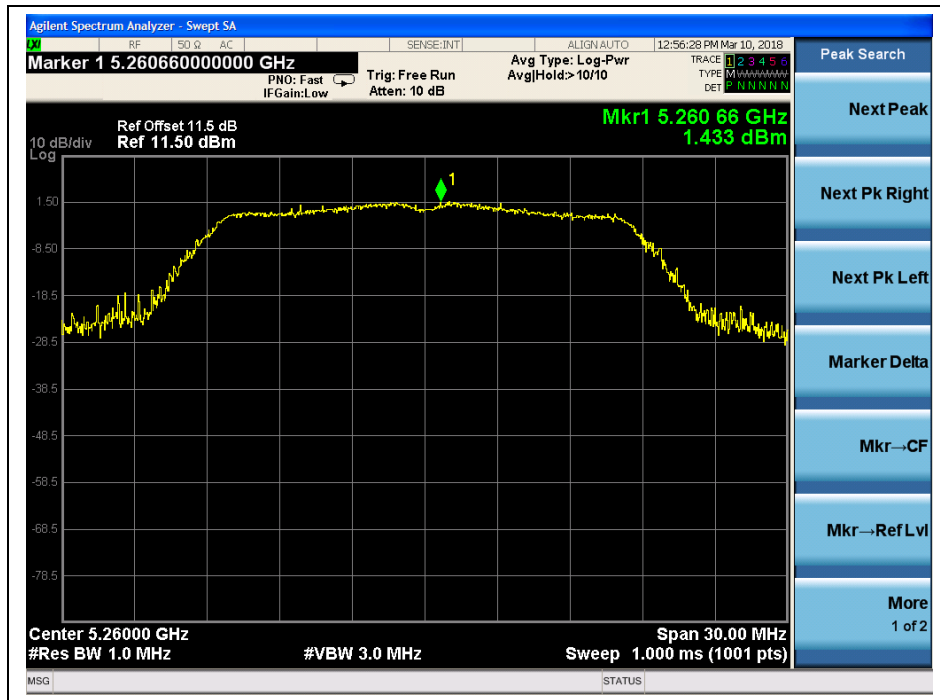
(Channel 36, 5180MHz, 802.11 n (HT20))



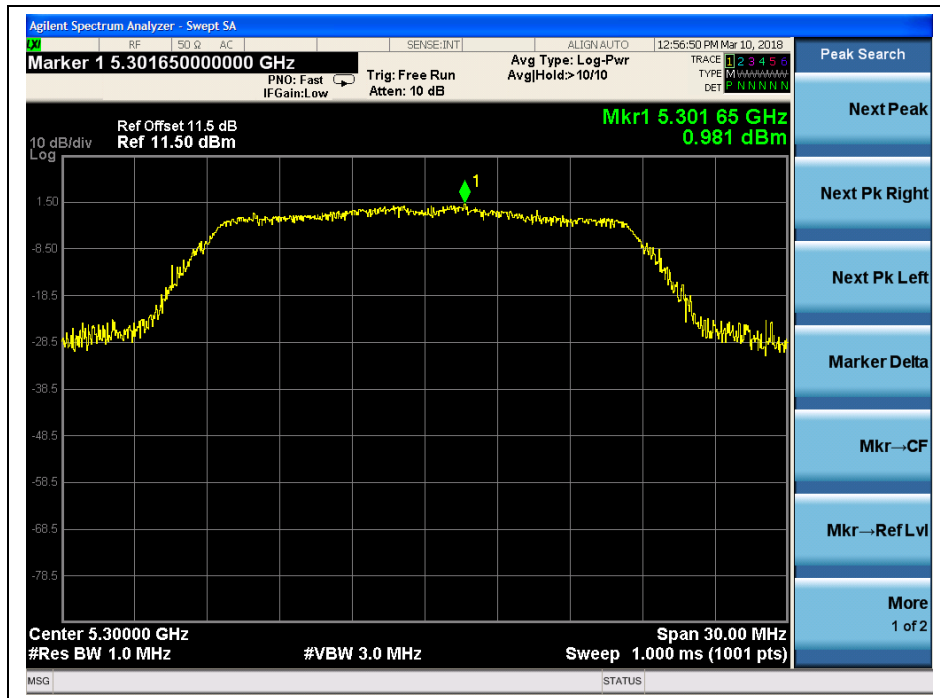
(Channel 44, 5220 MHz, 802.11 n (HT20))



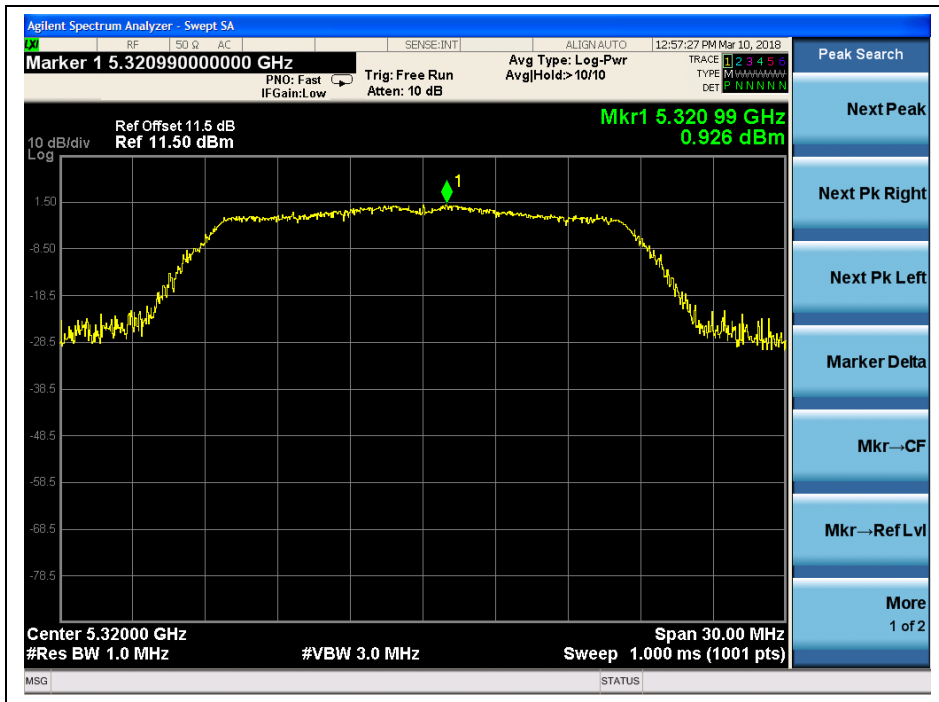
(Channel 48, 5240MHz, 802.11 n (HT20))



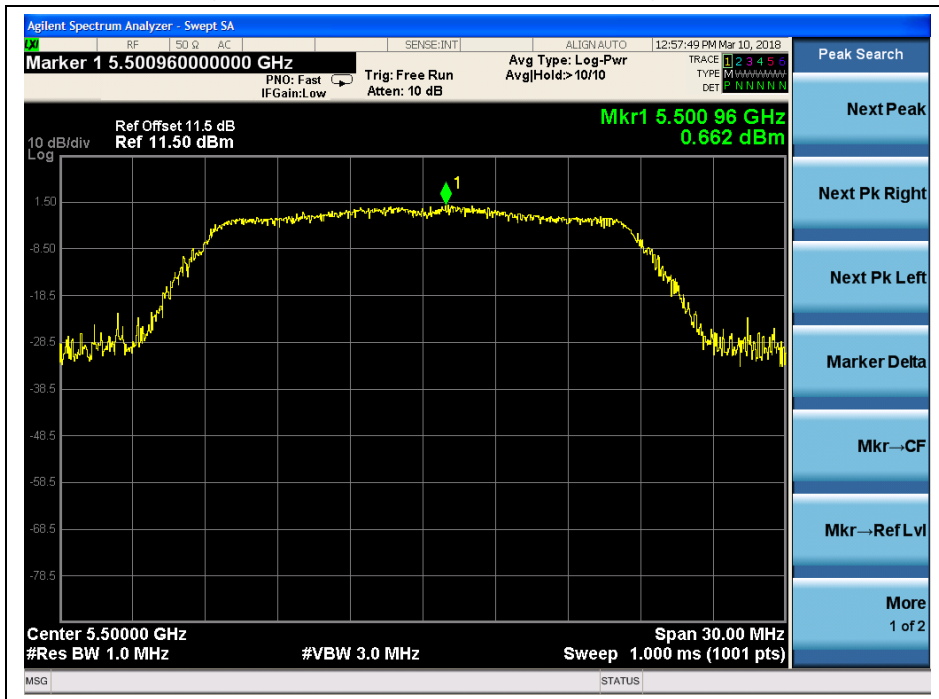
(Channel 52, 5260MHz, 802.11 n (HT20))



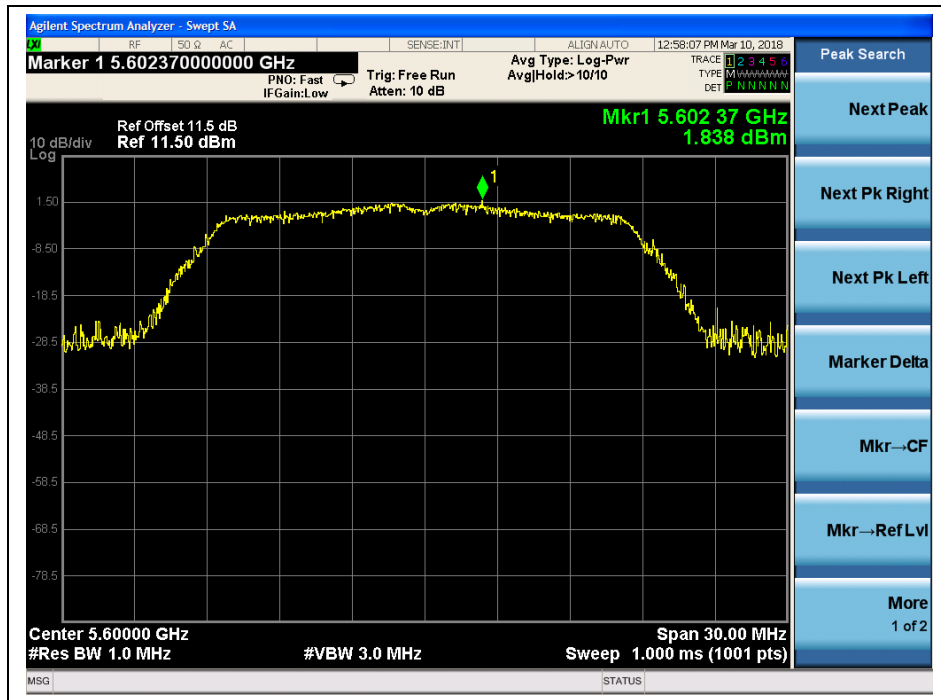
(Channel 60, 5300 MHz, 802.11 n (HT20))



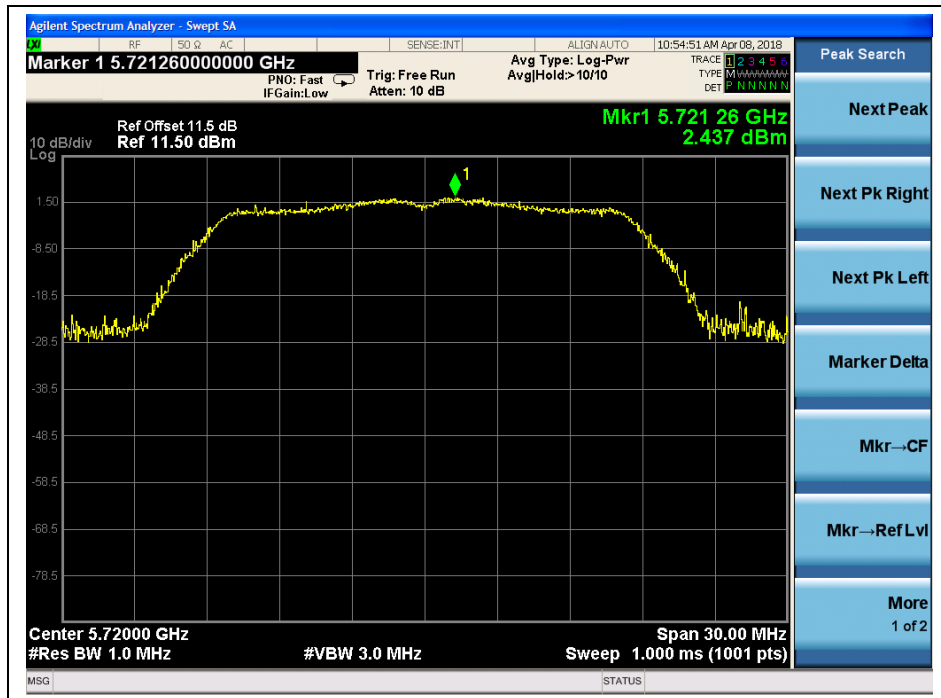
(Channel 64, 5320MHz, 802.11 n (HT20))



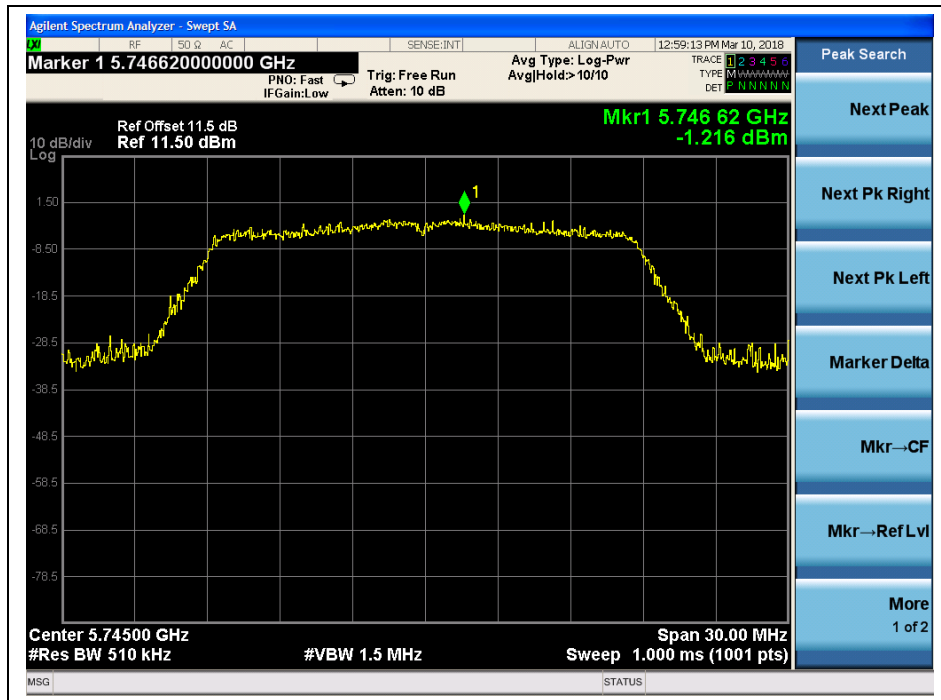
(Channel 100, 5500MHz, 802.11 n (HT20))



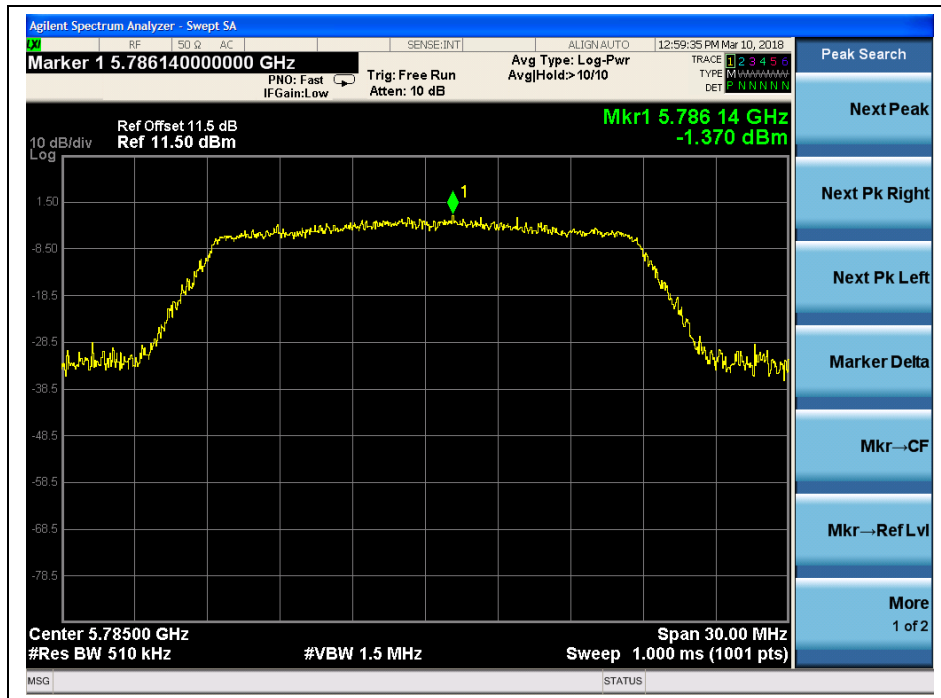
(Channel 120, 5600 MHz, 802.11 n (HT20))



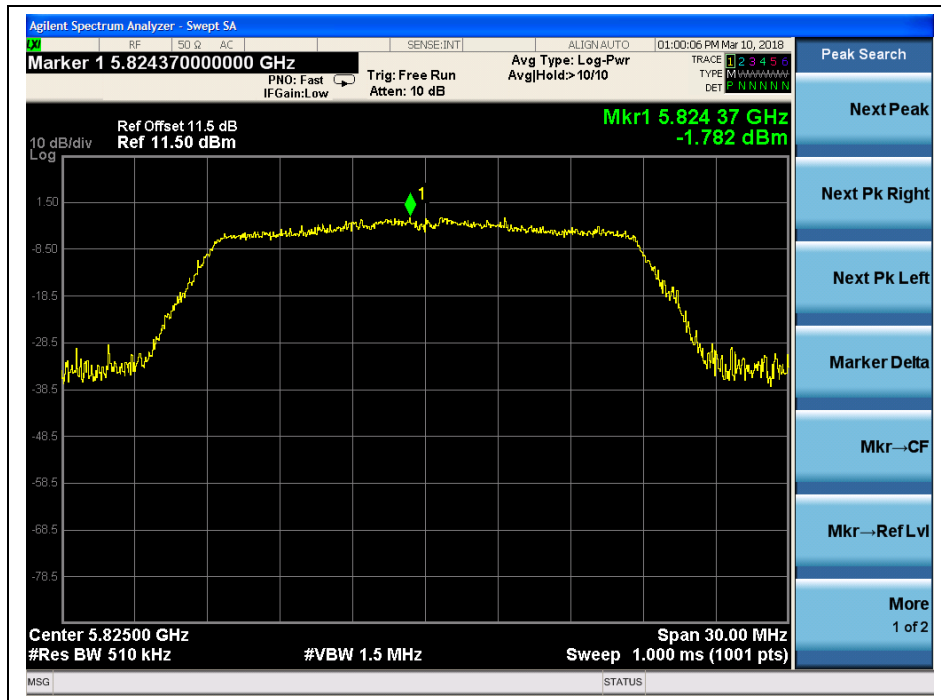
(Channel 142, 5720MHz, 802.11 n (HT20))



(Channel 149, 5745MHz, 802.11 n (HT20))



(Channel 157, 5785MHz, 802.11 n (HT20))



(Channel 165, 5825MHz, 802.11 n (HT20))

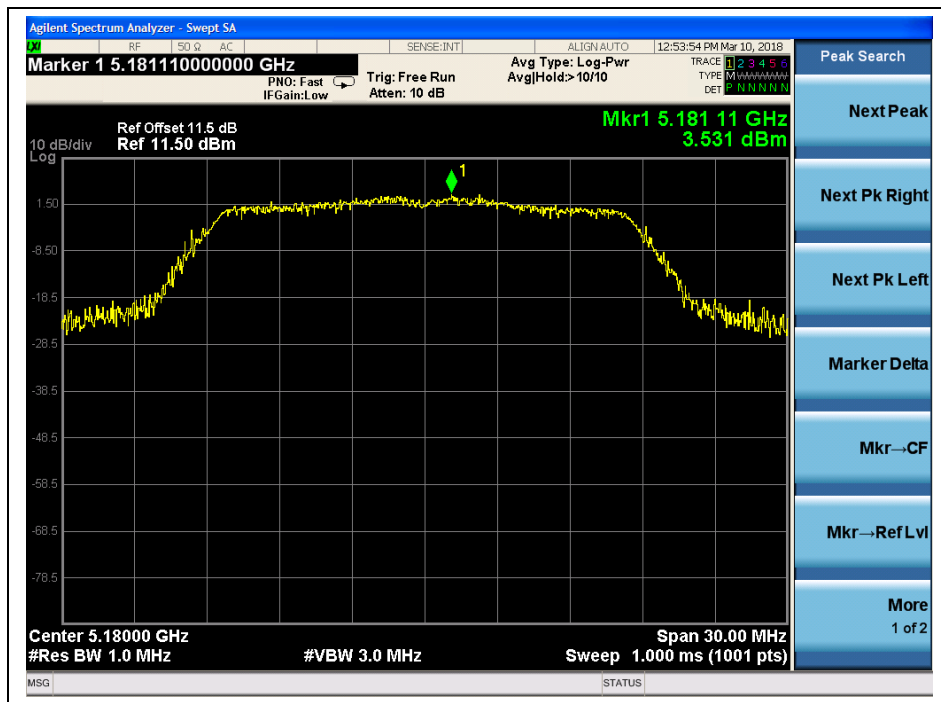


802.11 ac (VHT20) Test mode

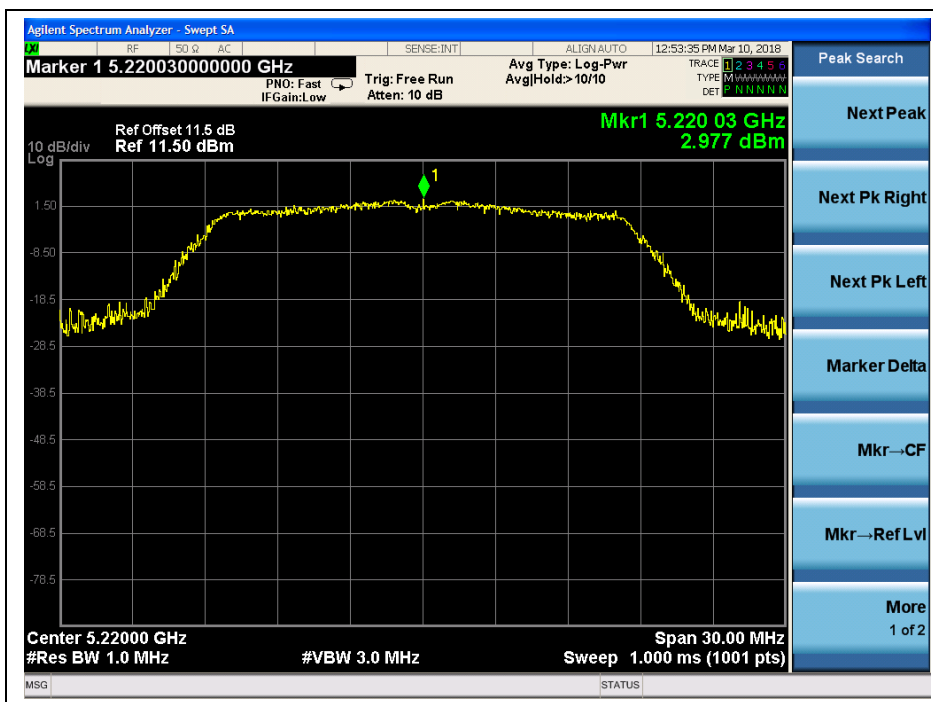
A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	3.53	11	PASS
44	5220	2.98		
48	5240	2.59		
52	5260	1.73		
60	5300	2.18		
64	5320	1.17		
100	5500	1.23		
116	5600	1.20		
144	5720	2.37		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
149	5745	-1.71	30	PASS
157	5785	-0.12		
165	5825	-1.85		

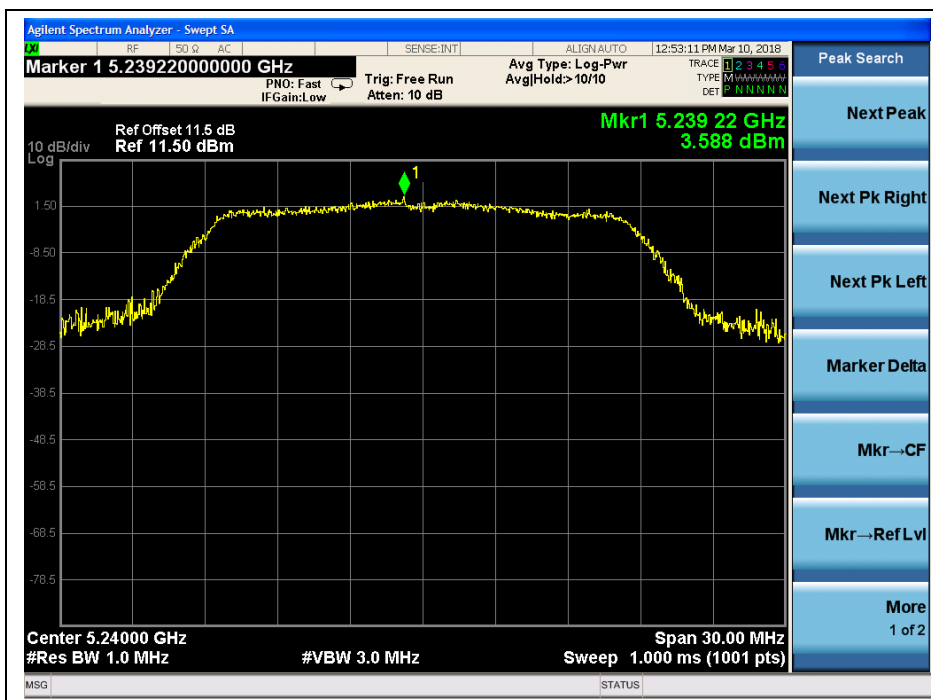
B. Test Plots



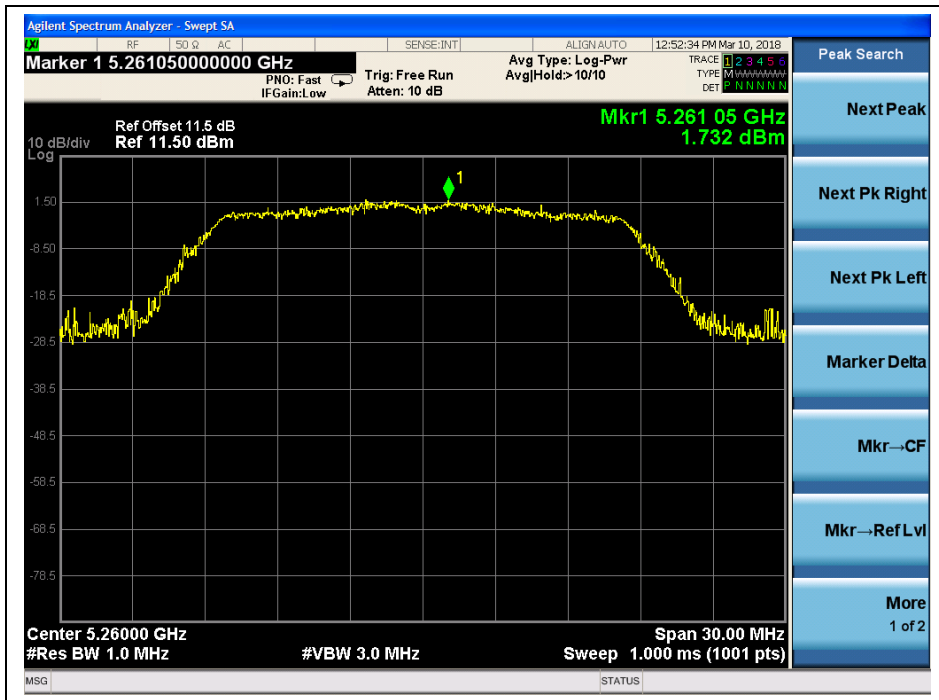
(Channel 36, 5180MHz, 802.11 ac (VHT20))



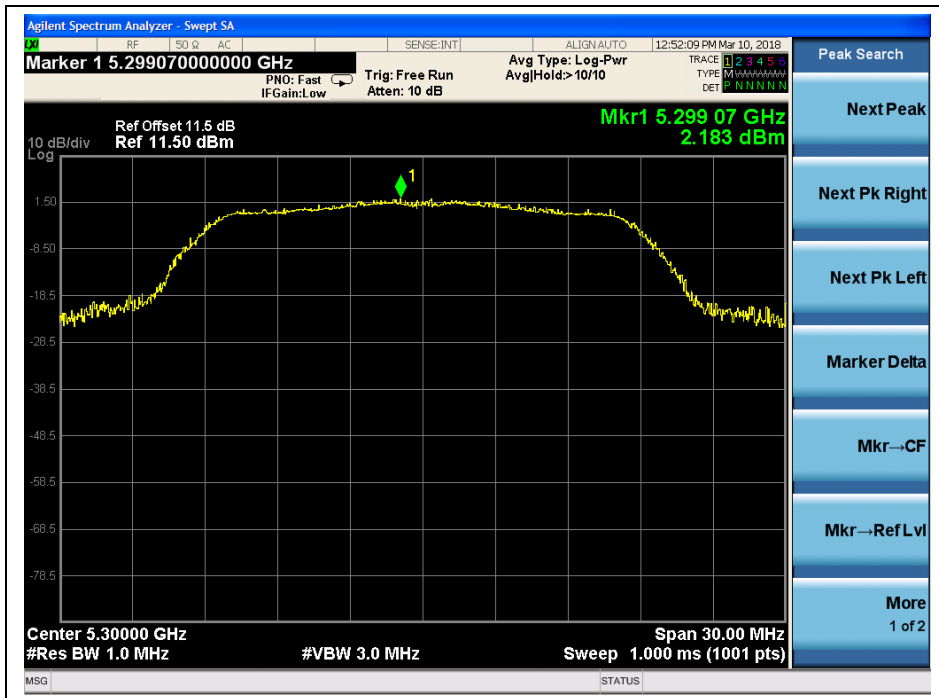
(Channel 44, 5220 MHz, 802.11 ac (VHT20))



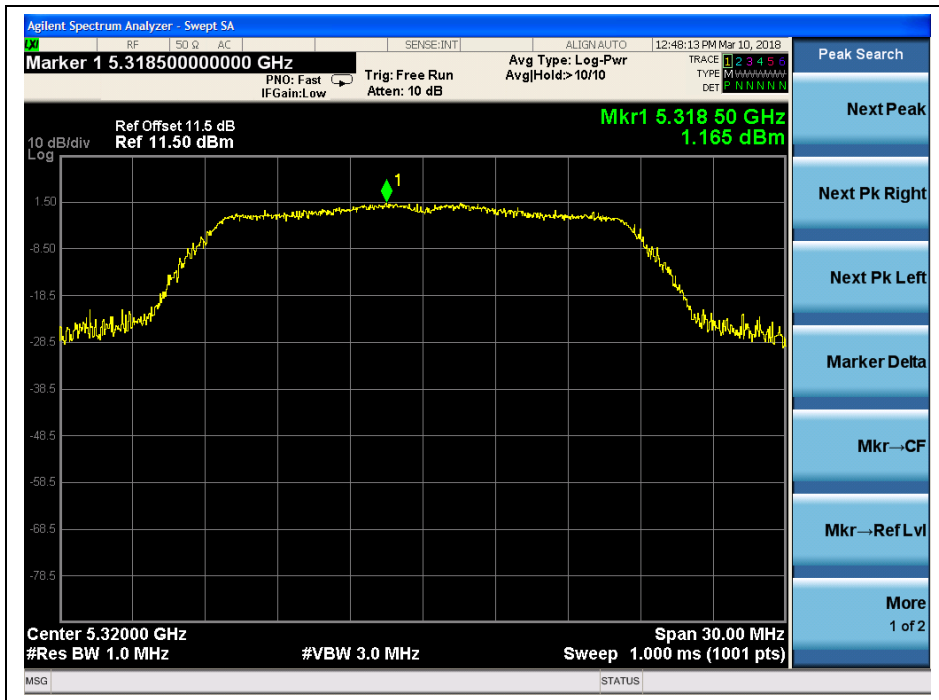
(Channel 48, 5240MHz, 802.11 ac (VHT20))



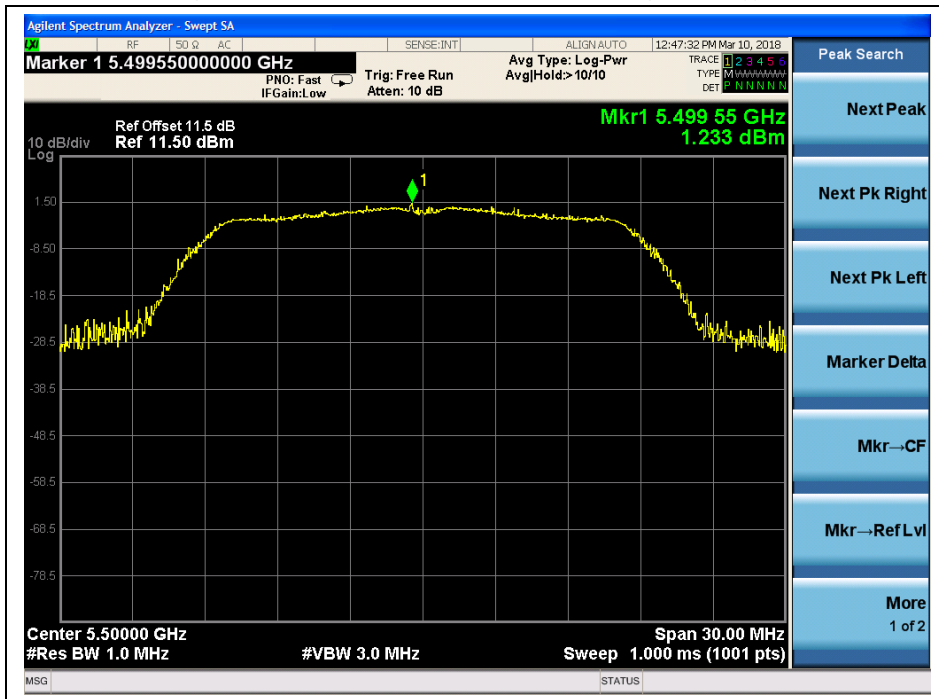
(Channel 52, 5260MHz, 802.11 ac (VHT20))



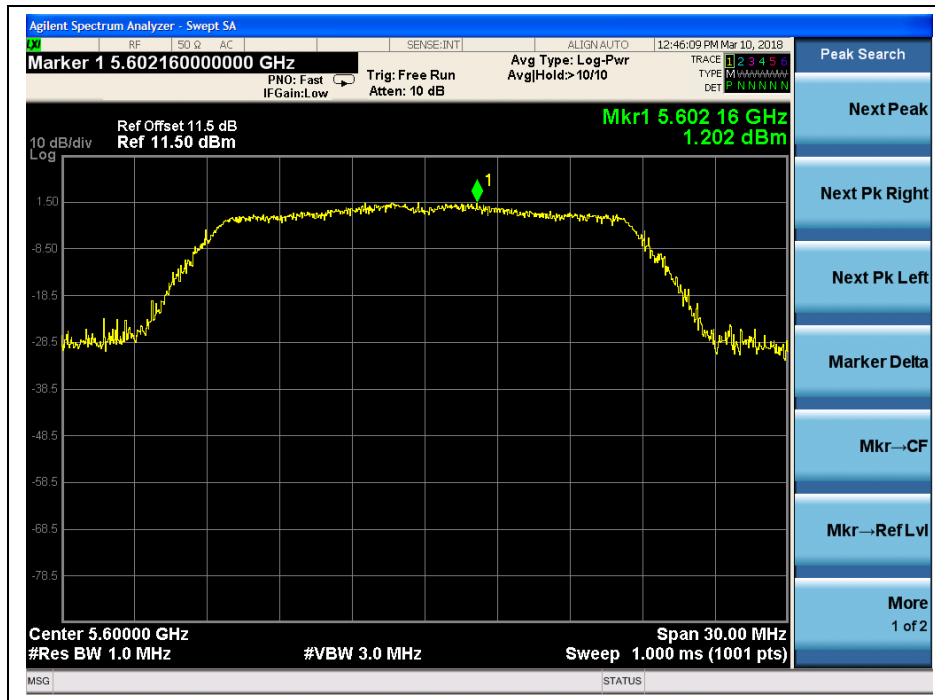
(Channel 60, 5300 MHz, 802.11 ac (VHT20))



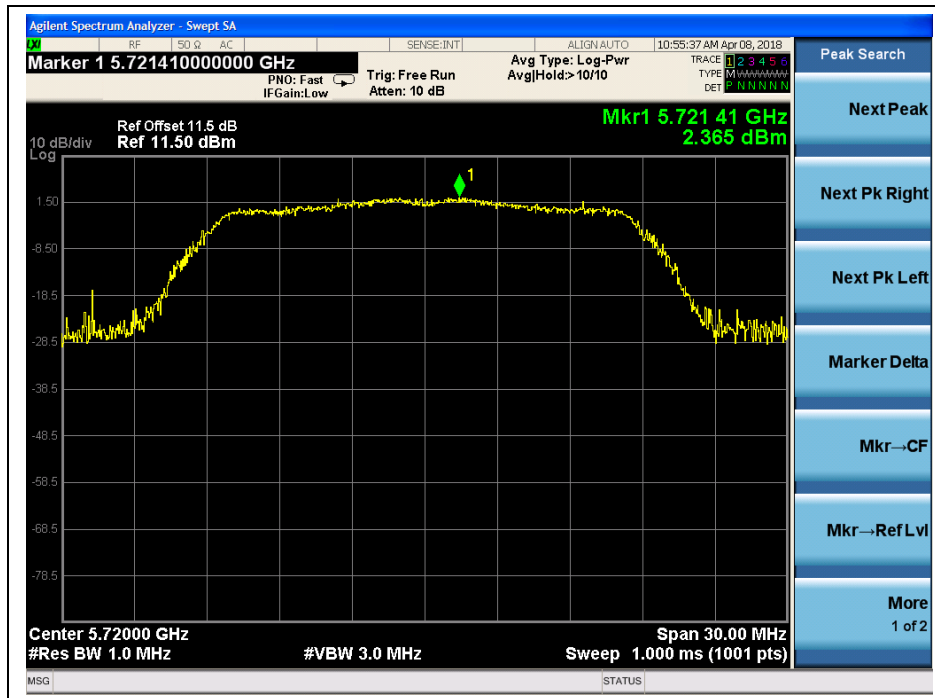
(Channel 64, 5320MHz, 802.11 ac (VHT20))



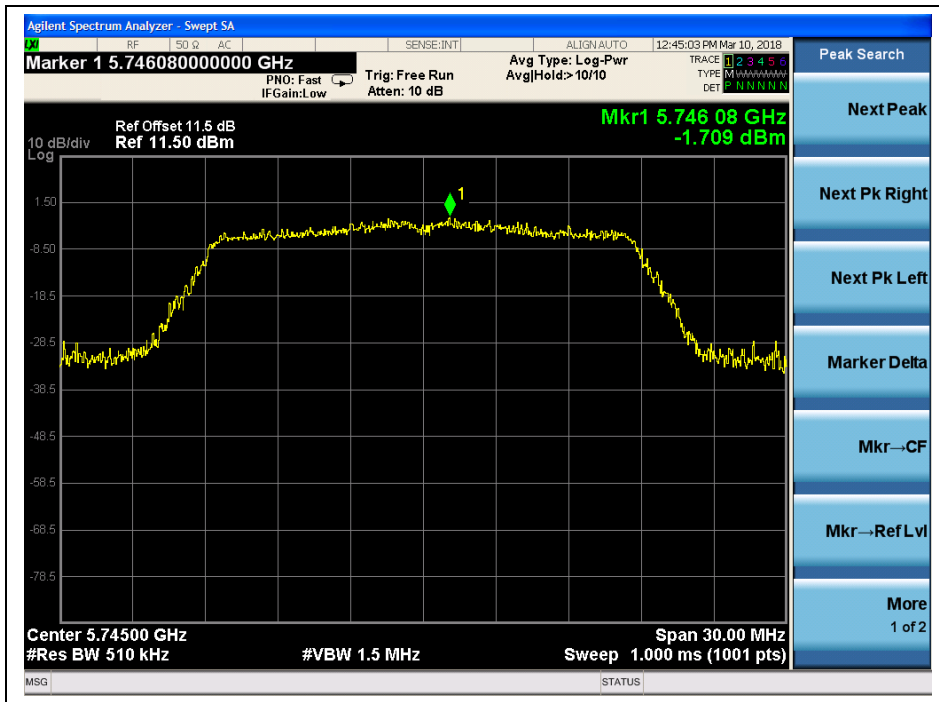
(Channel 100, 5500MHz, 802.11 ac (VHT20))



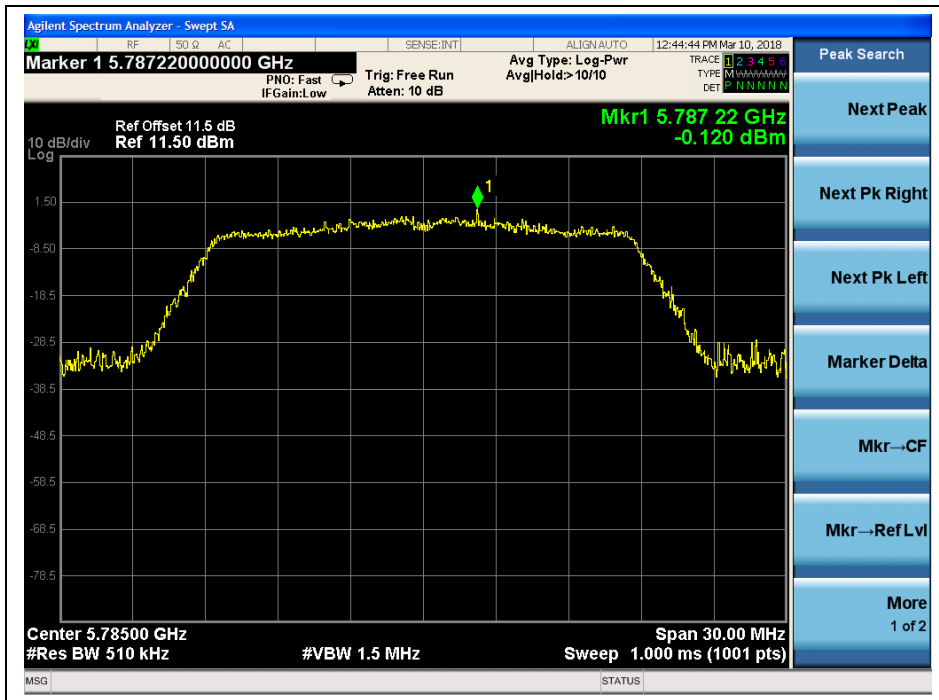
(Channel 120, 5600 MHz, 802.11 ac (VHT20))



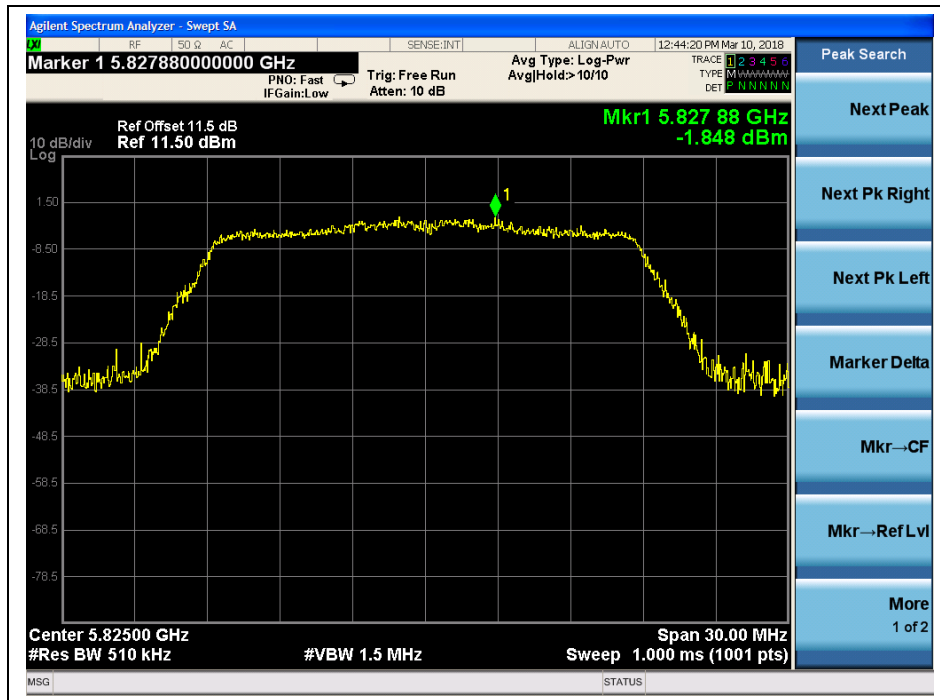
(Channel 142, 5720MHz, 802.11 ac (VHT20))



(Channel 149, 5745MHz, 802.11 ac (VHT20))



(Channel 157, 5785MHz, 802.11 ac (VHT20))



(Channel 165, 5825MHz, 802.11 ac (VHT20))

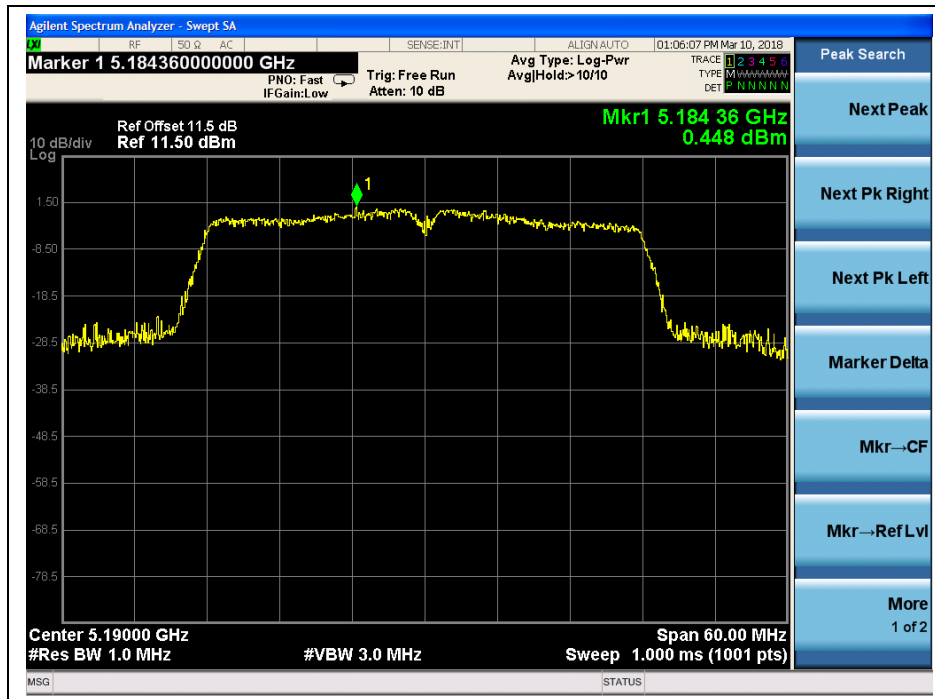


802.11n (HT40) Test mode

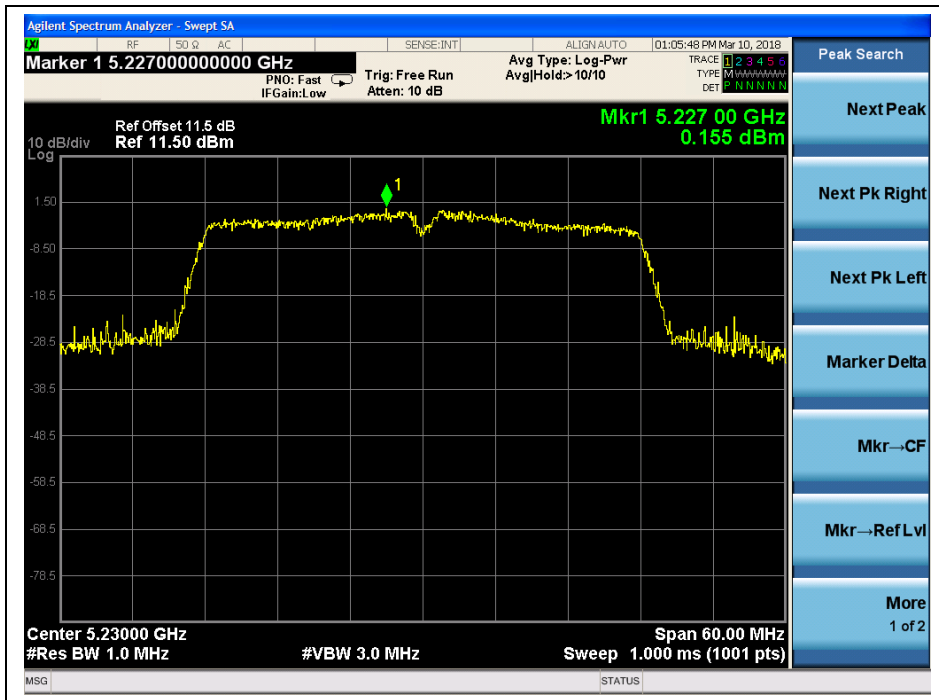
A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
38	5190	0.45	11	PASS
46	5230	0.16		
54	5270	-2.12		
62	5310	-1.38		
102	5510	-2.64		
126	5630	-1.71		
142	5710	-0.65		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
151	5755	-4.69	30	PASS
159	5795	-4.28		

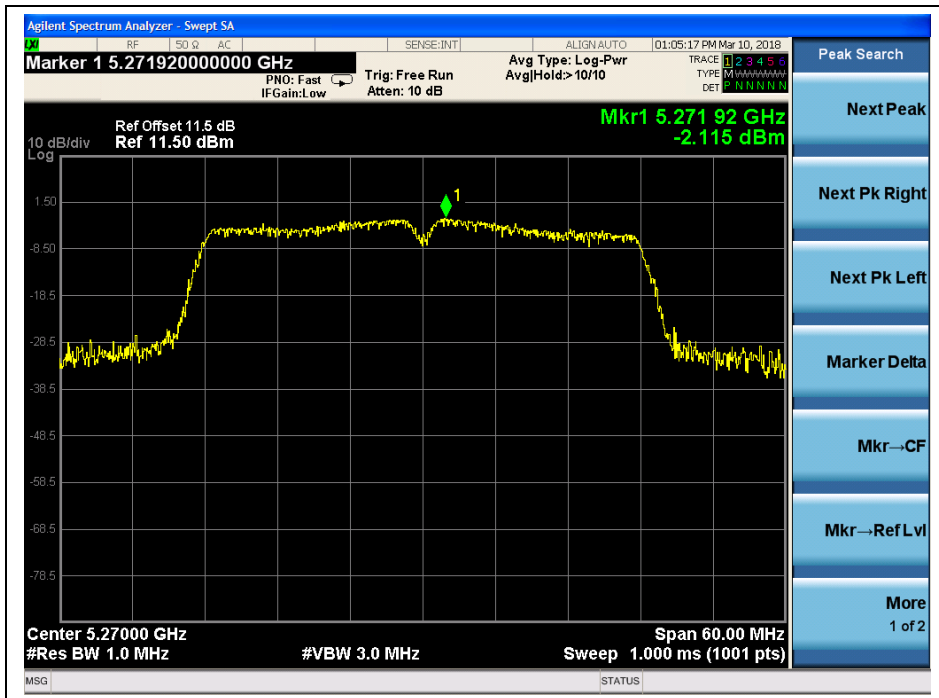
B. Test Plots



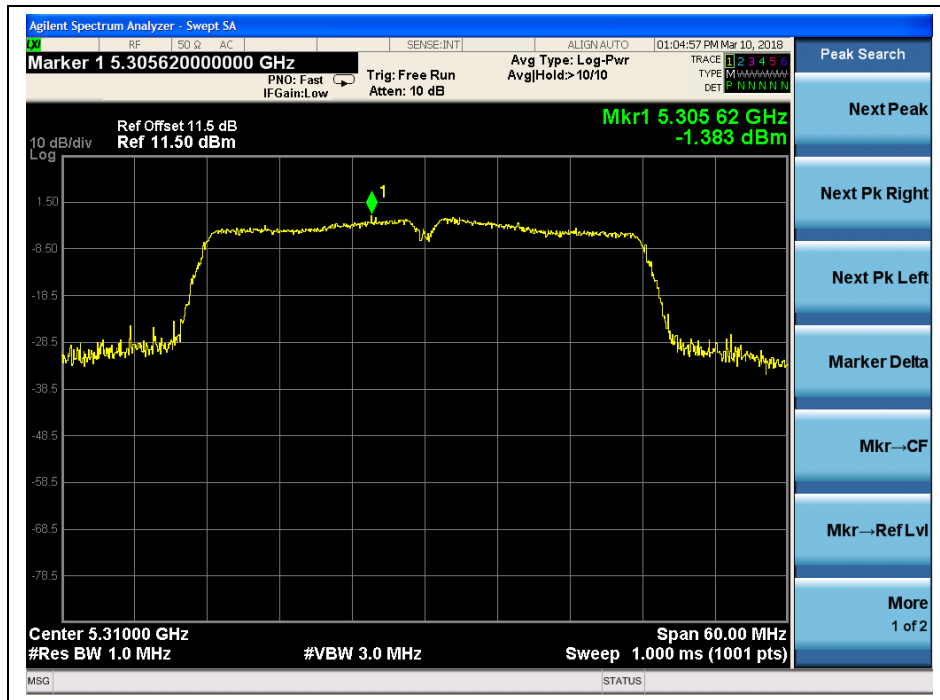
(Channel 38, 5190MHz, 802.11n (HT40))



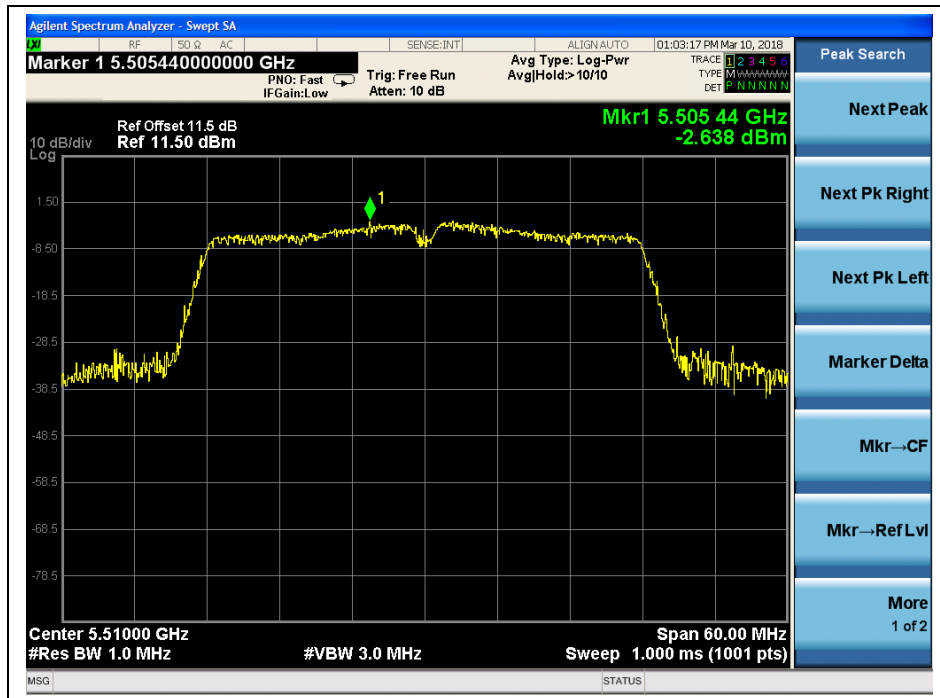
(Channel 46, 5230 MHz, 802.11n (HT40))



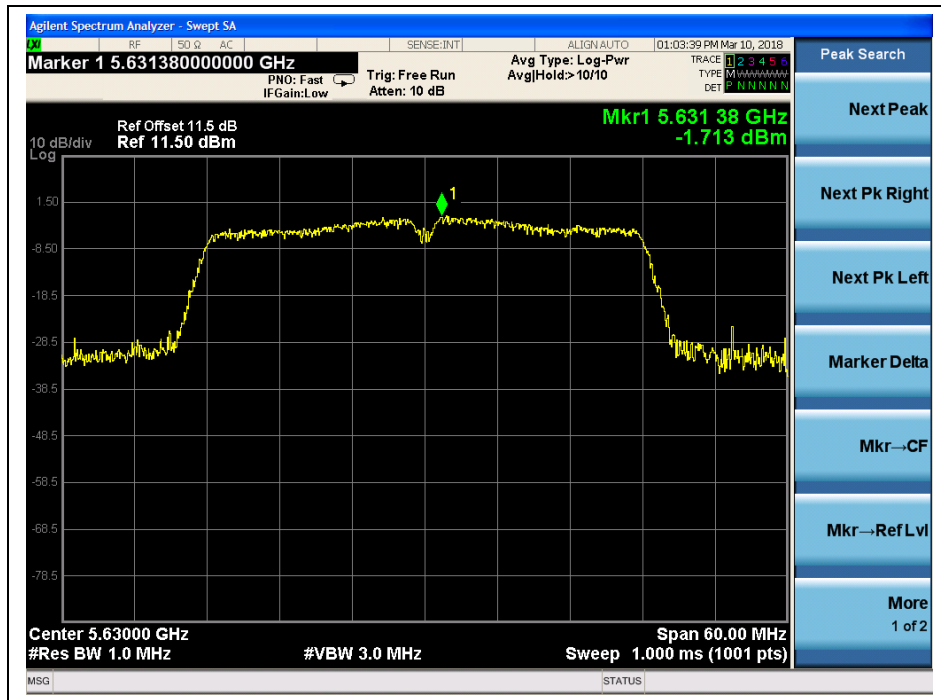
(Channel 54, 5270MHz, 802.11n (HT40))



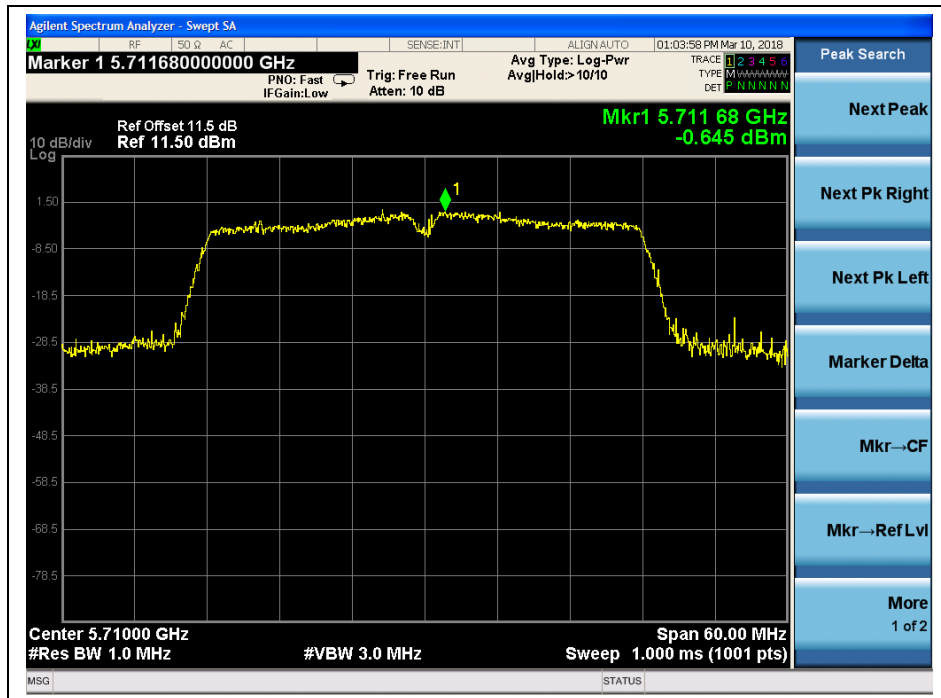
(Channel 62, 5310 MHz, 802.11n (HT40))



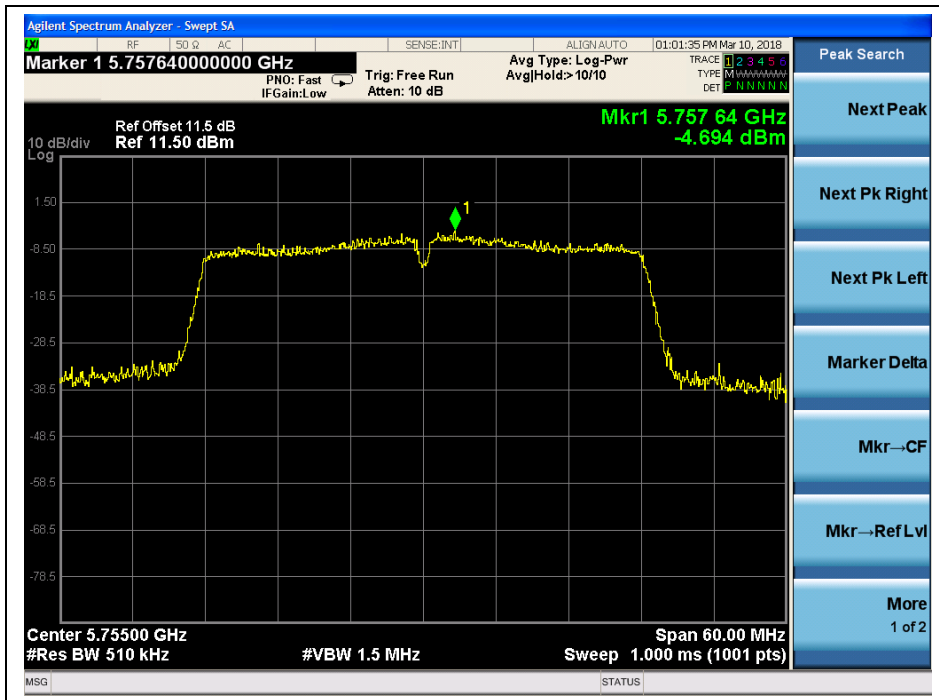
(Channel 102, 5510MHz, 802.11n (HT40))



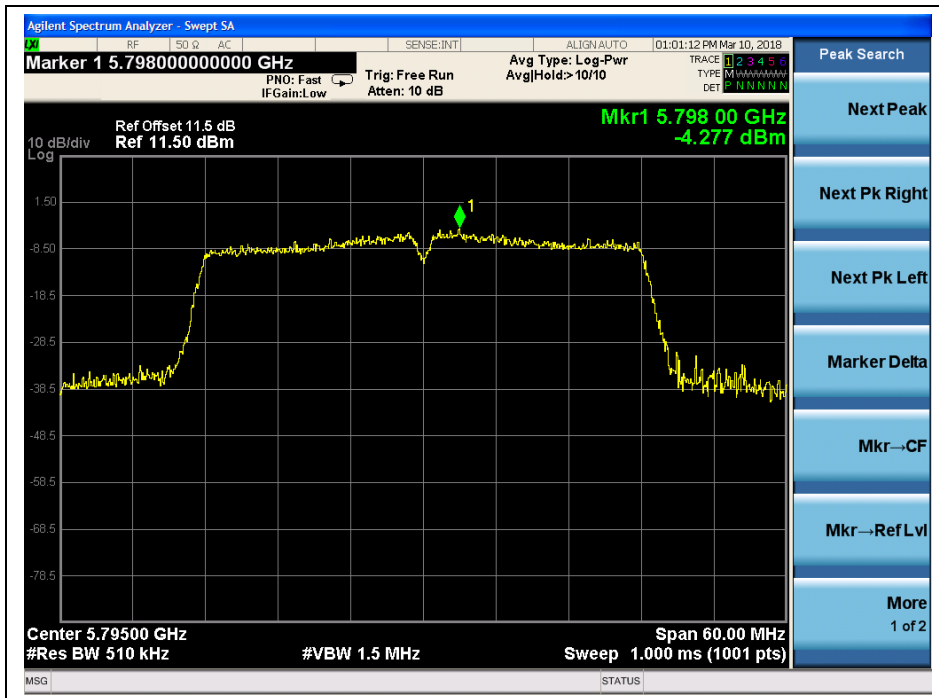
(Channel 126, 5630 MHz, 802.11n (HT40))



(Channel 142, 5710MHz, 802.11n (HT40))



(Channel 151, 5755 MHz, 802.11n (HT40))



(Channel 159, 5795MHz, 802.11n (HT40))

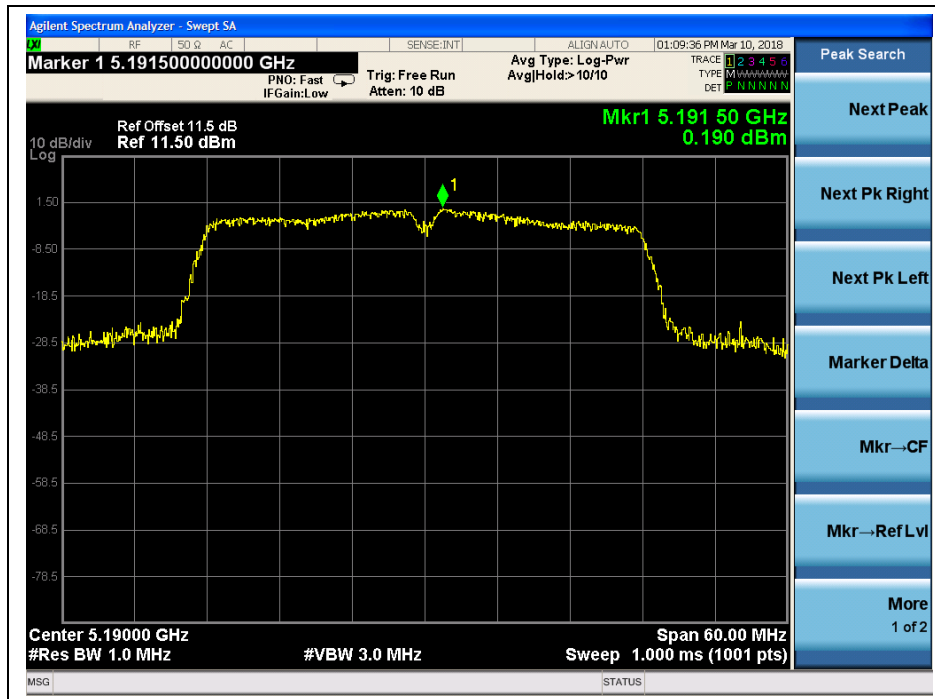


802.11 ac (VHT40) Test mode

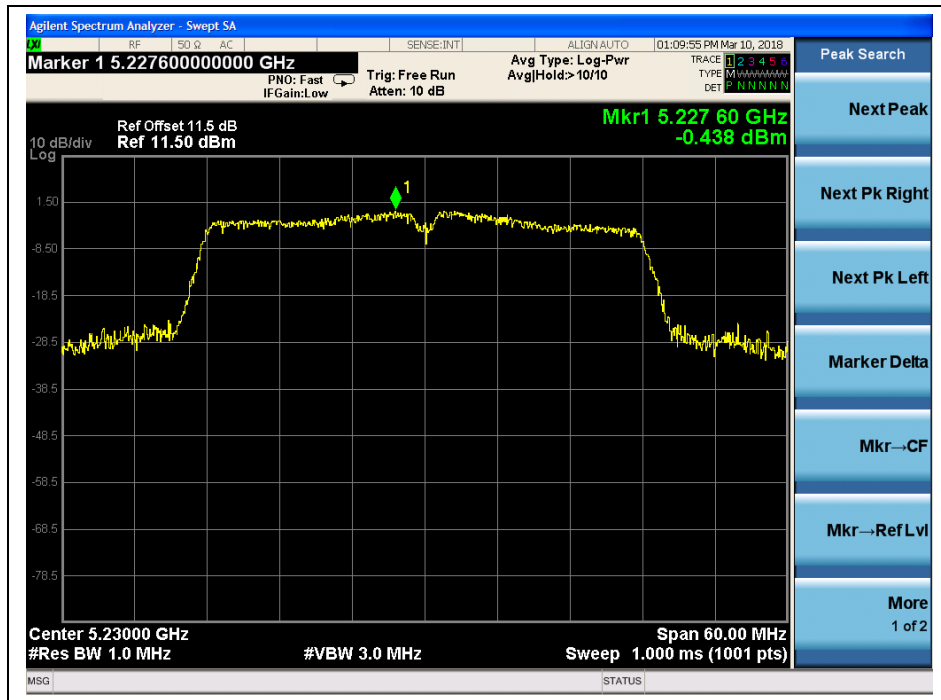
A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
38	5190	0.19	11	PASS
46	5230	-0.44		
54	5270	-1.34		
62	5310	-1.63		
102	5510	-2.26		
126	5630	-1.10		
142	5710	-0.13		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
151	5755	-3.75	30	PASS
159	5795	-4.01		

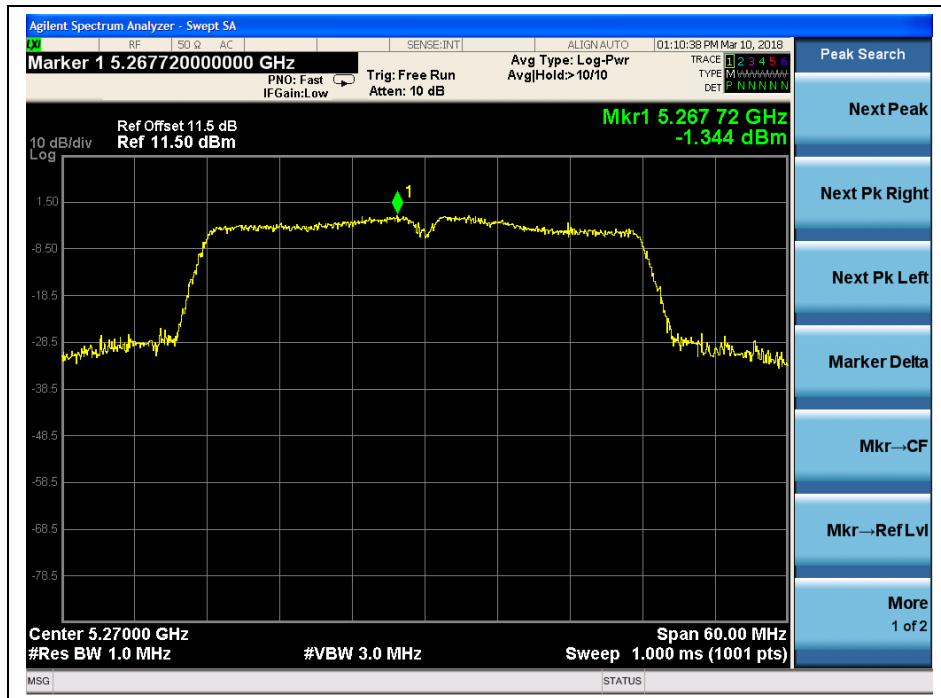
B. Test Plots



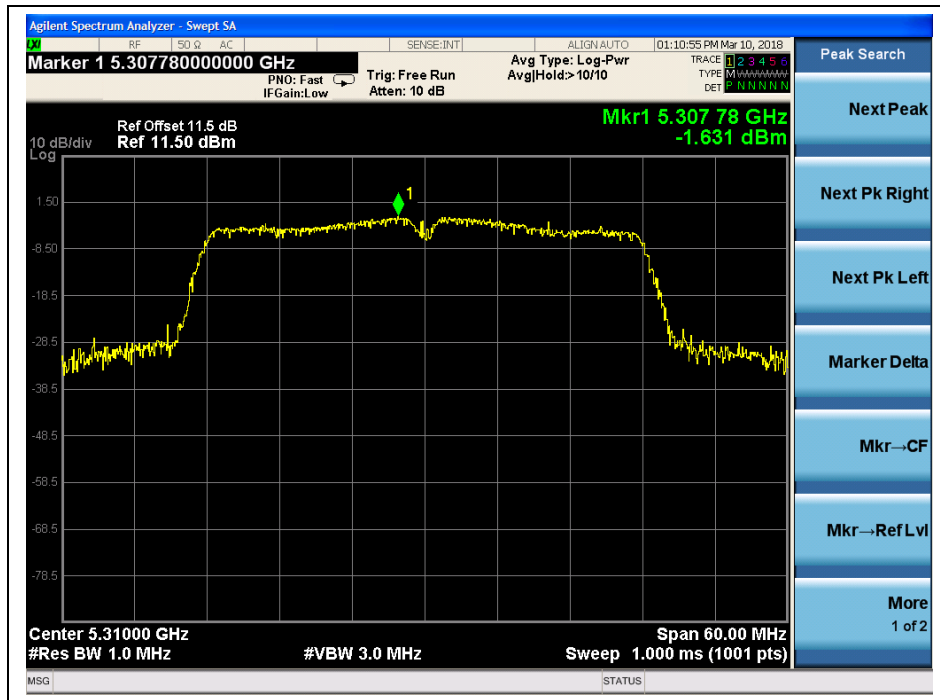
(Channel 38, 5190MHz, 802.11 ac (VHT40))



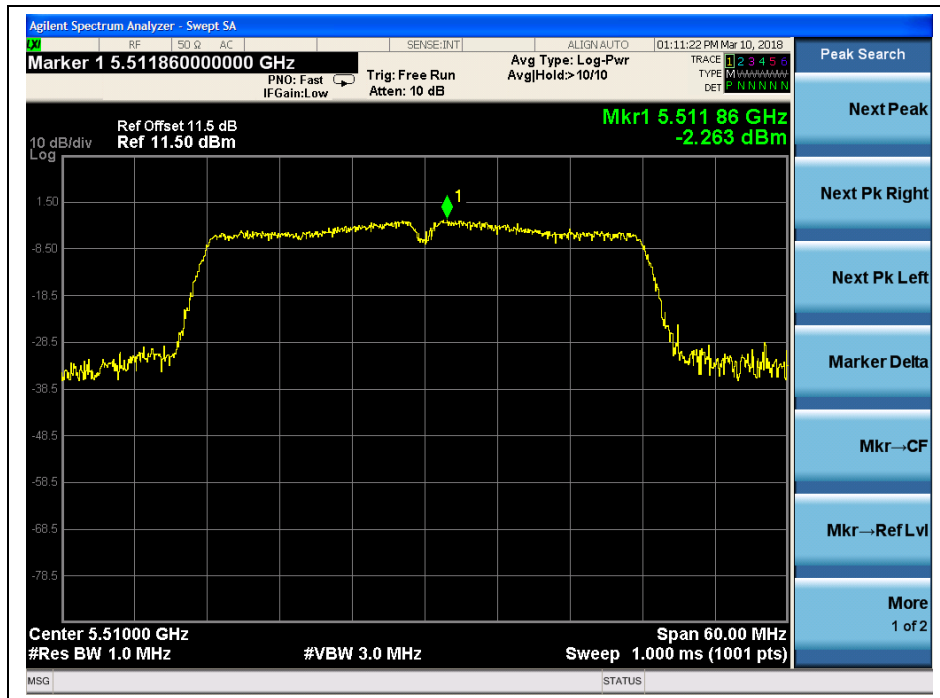
(Channel 46, 5230 MHz, 802.11 ac (VHT40))



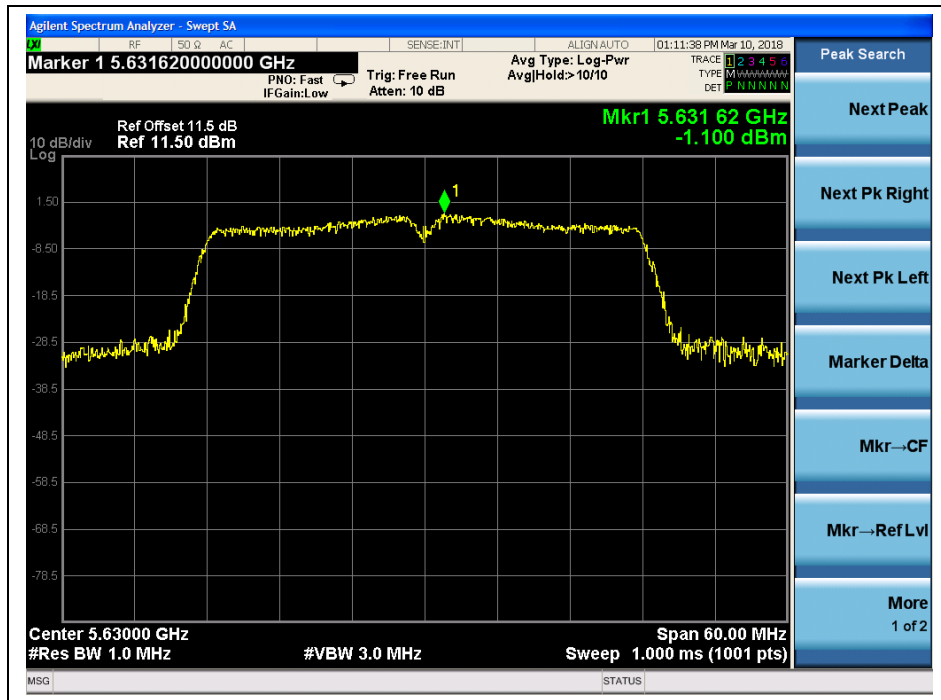
(Channel 54, 5270MHz, 802.11 ac (VHT40))



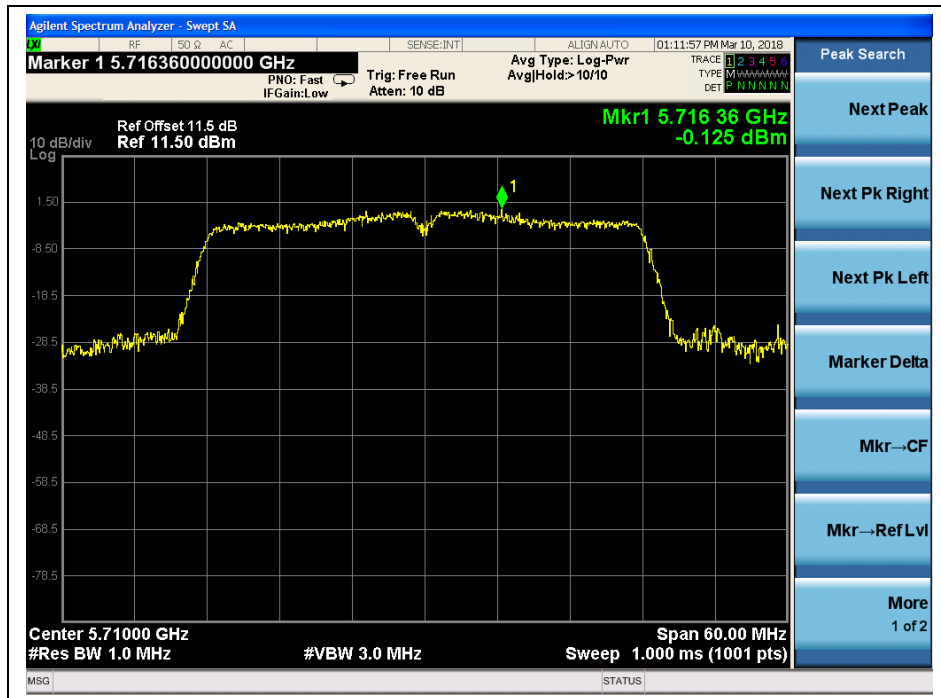
(Channel 62, 5310 MHz, 802.11 ac (VHT40))



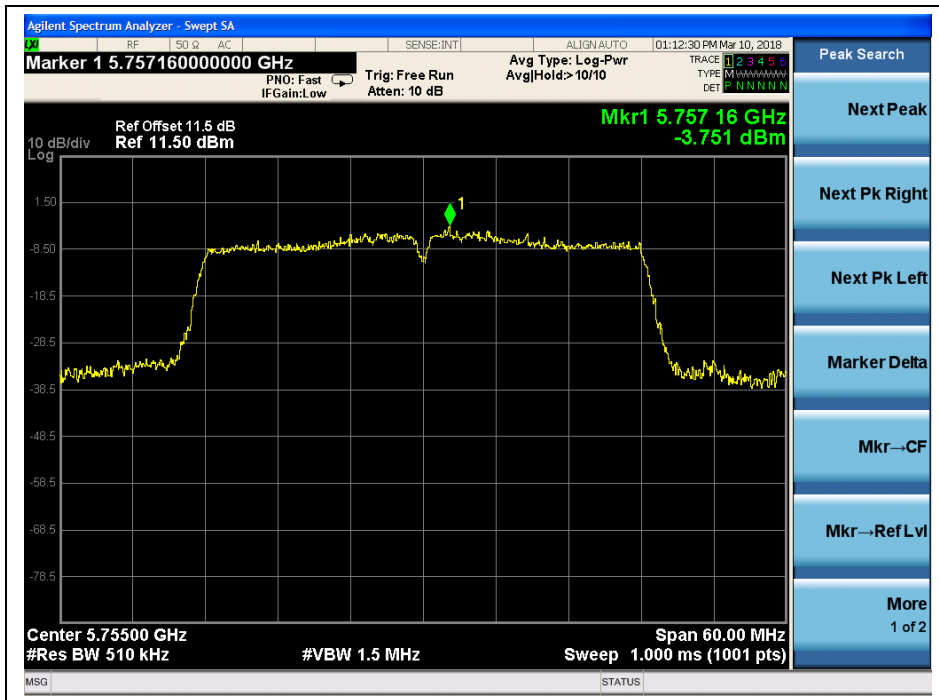
(Channel 102, 5510MHz, 802.11 ac (VHT40))



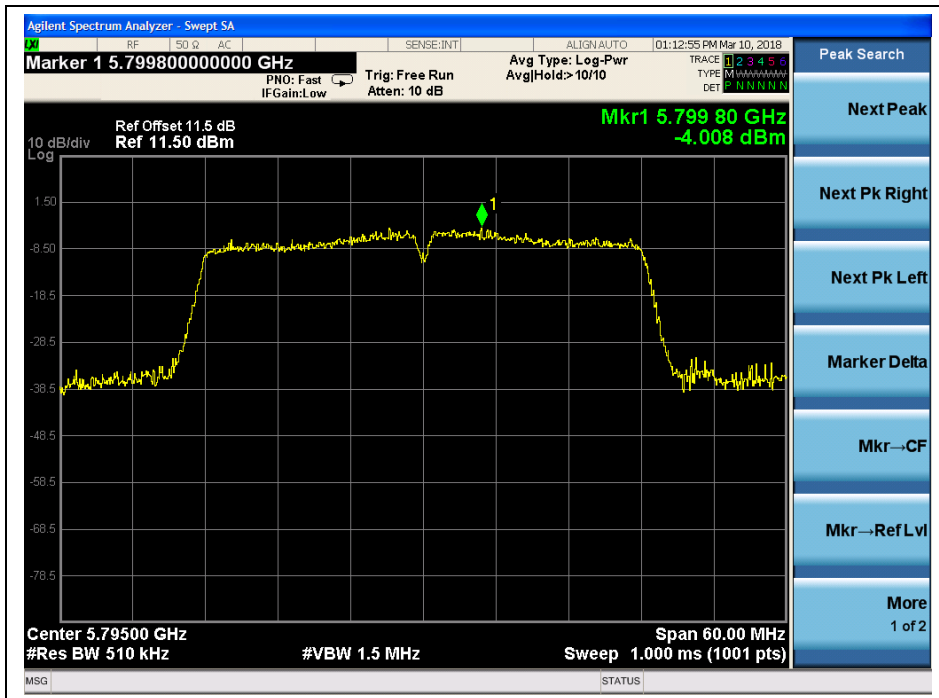
(Channel 126, 5630 MHz, 802.11 ac (VHT40))



(Channel 142, 5710MHz, 802.11 ac (VHT40))



(Channel 151, 5755 MHz, 802.11 ac (VHT40))



(Channel 159, 5795MHz, 802.11 ac (VHT40))

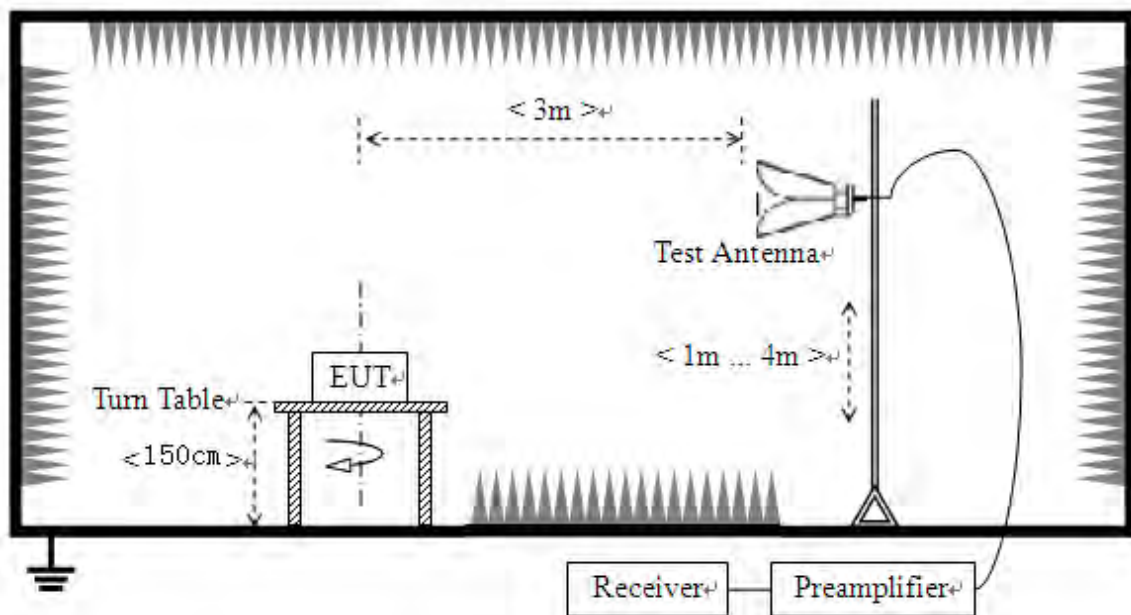
2.5. Restricted Frequency Bands

2.5.1. Requirement

According to FCC section 15.407(b)(7), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

2.5.2. Test Description

A. Test Setup



The Module is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

KDB 789033 Section H) 3)5)6(d)) was used in order to prove compliance

For the Test Antenna:

Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.



2.5.3. Test Result

The lowest and highest channels are tested to verify Restricted Frequency Bands.

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

A_T : Total correction Factor except Antenna; U_R : Receiver Reading

G_{preamp} : Preamplifier Gain; A_{Factor} : Antenna Factor at 3m

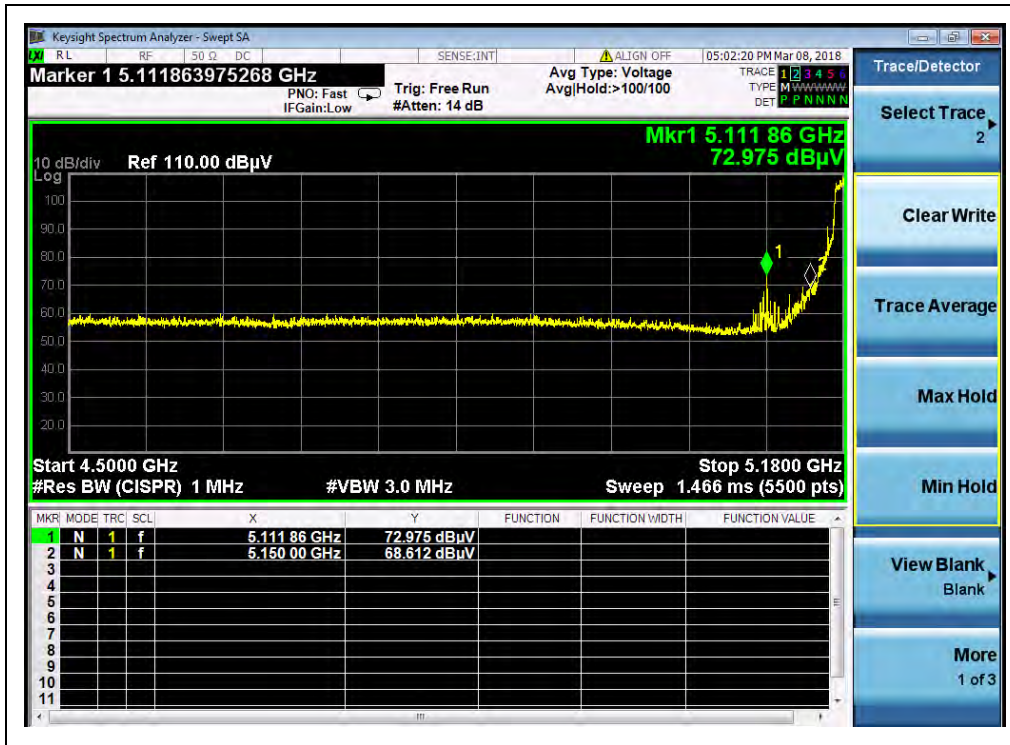
Note: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

802.11a Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV	U_R (dBuV)					
36	5111.86	PK	72.98	-50.65	32.11	54.44	74	PASS
36	5148.59	AV	57.99	-50.65	32.11	39.45	54	PASS
64	5388.37	PK	72.37	-50.65	32.11	53.83	74	PASS
64	5351.22	AV	59.20	-50.65	32.11	40.66	54	PASS
100	5466.48	PK	76.03	-50.65	32.11	57.49	74	PASS
100	5468.61	AV	60.74	-50.65	32.11	42.20	54	PASS
142	5726.40	PK	78.14	-50.65	32.11	59.60	74	PASS
142	5726.79	AV	67.68	-50.65	32.11	49.14	54	PASS
149	5722.92	PK	83.81	-50.65	32.11	65.27	117.49	PASS
149	5723.08	AV	67.45	-50.65	32.11	48.91	54	PASS
165	5850.73	PK	74.06	-50.65	32.11	55.52	120.56	PASS
165	5850.61	AV	59.03	-50.65	32.11	40.49	54	PASS

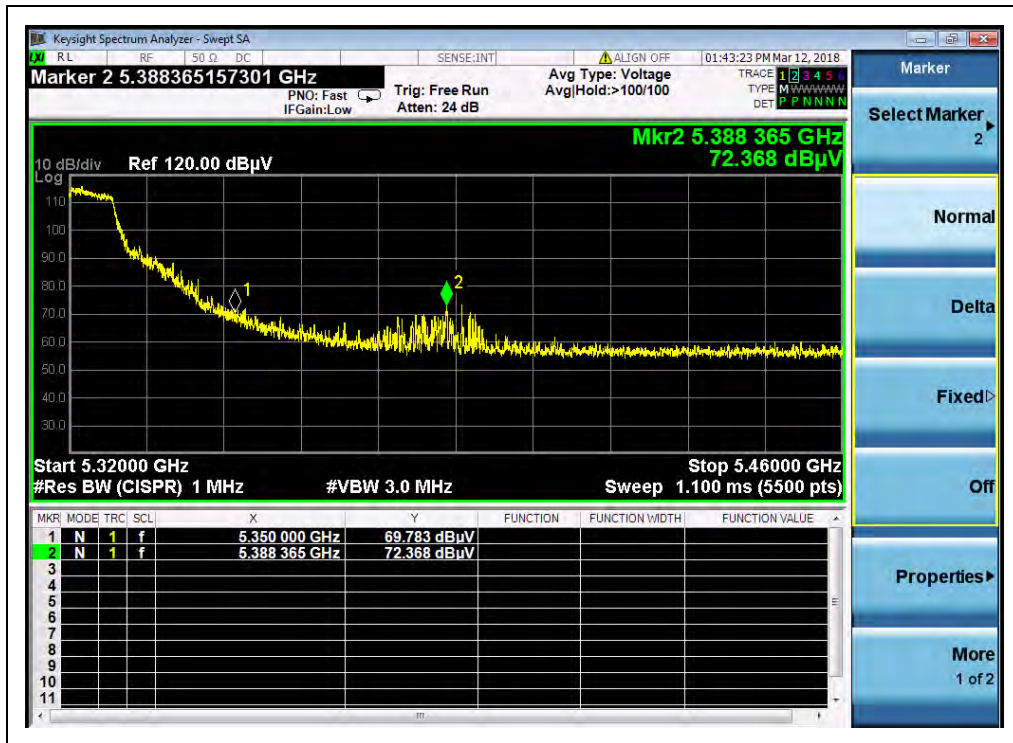
B. Test Plots:



(Channel 36, PEAK, 802.11a)



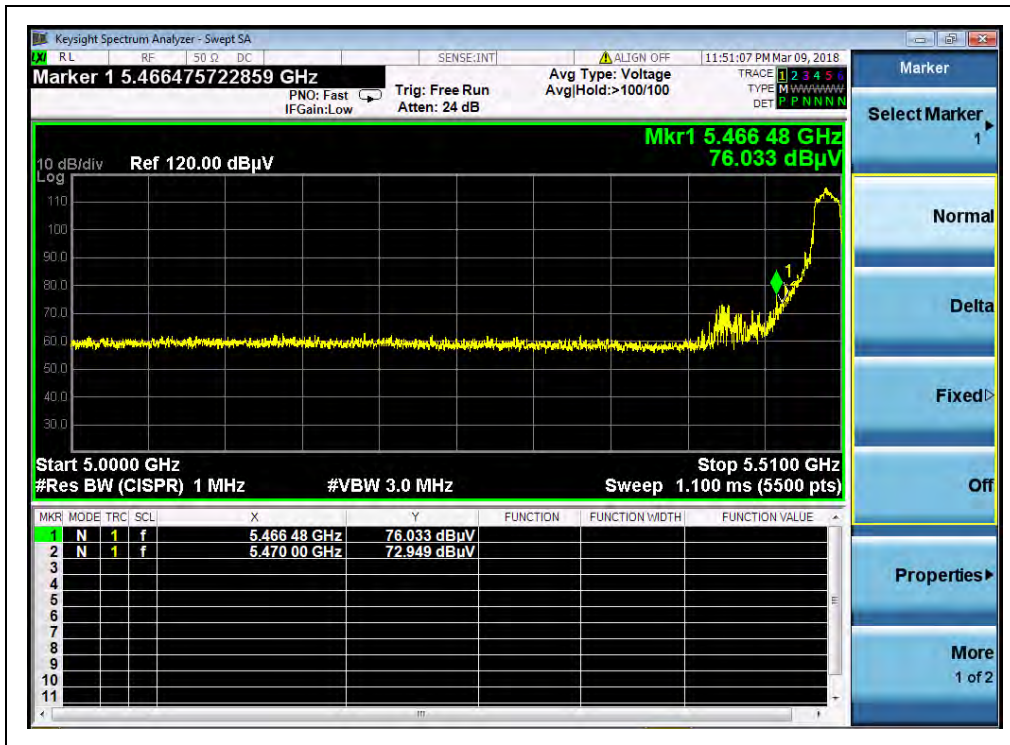
(Channel 36, AVG, 802.11a)



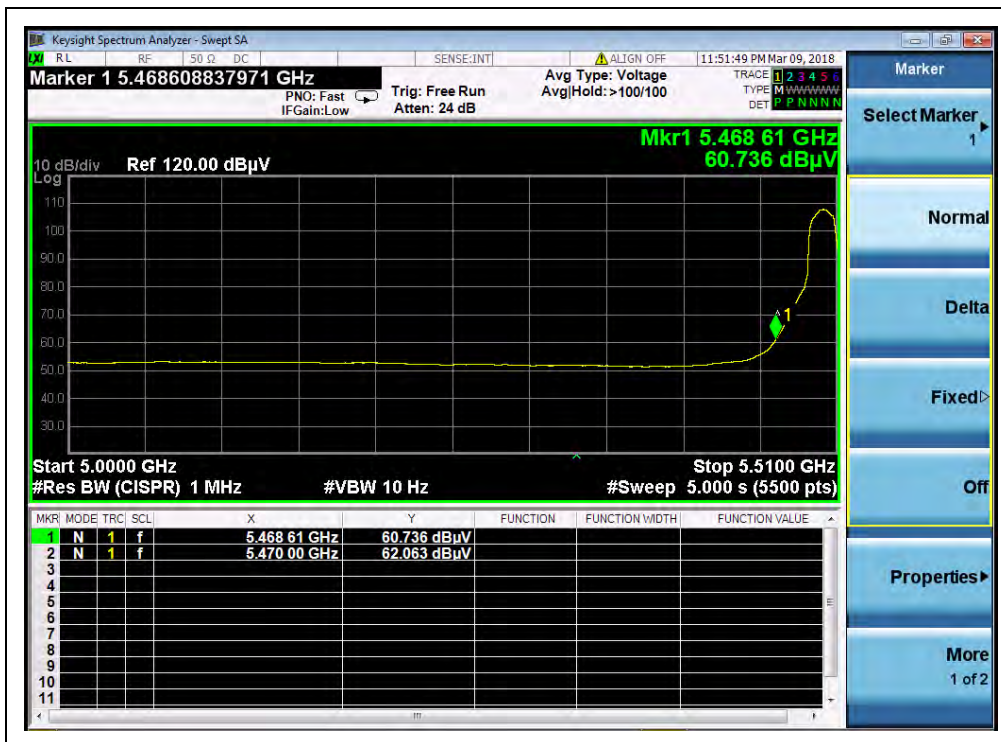
(Channel 64, PEAK, 802.11a)



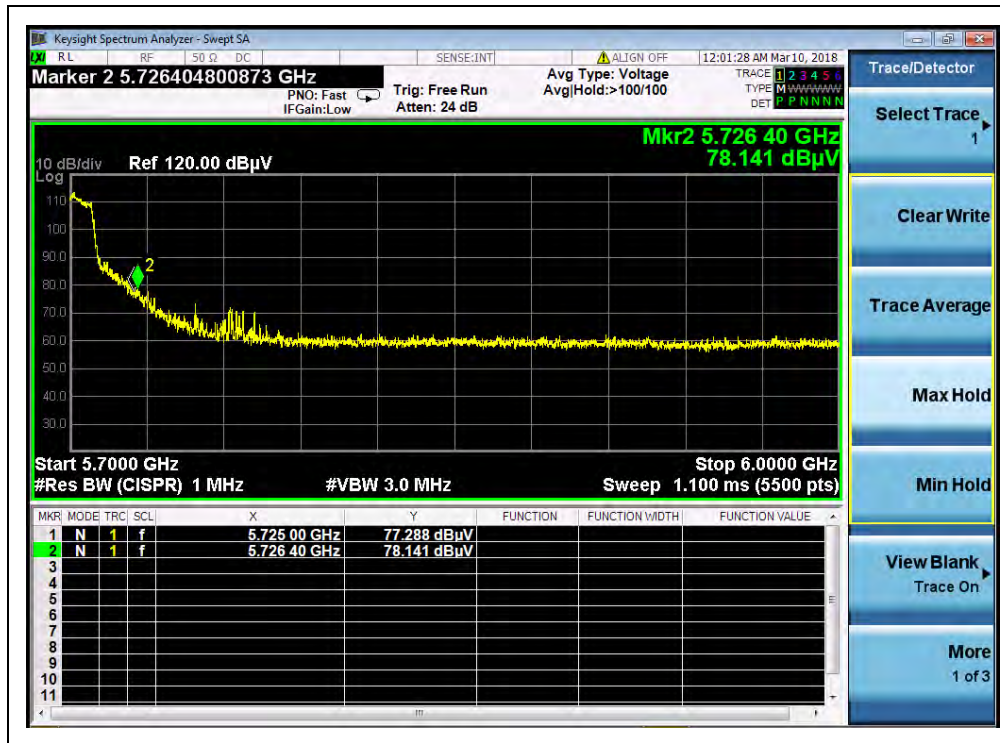
(Channel 64, AVG, 802.11a)



(Channel 100, PEAK, 802.11a)



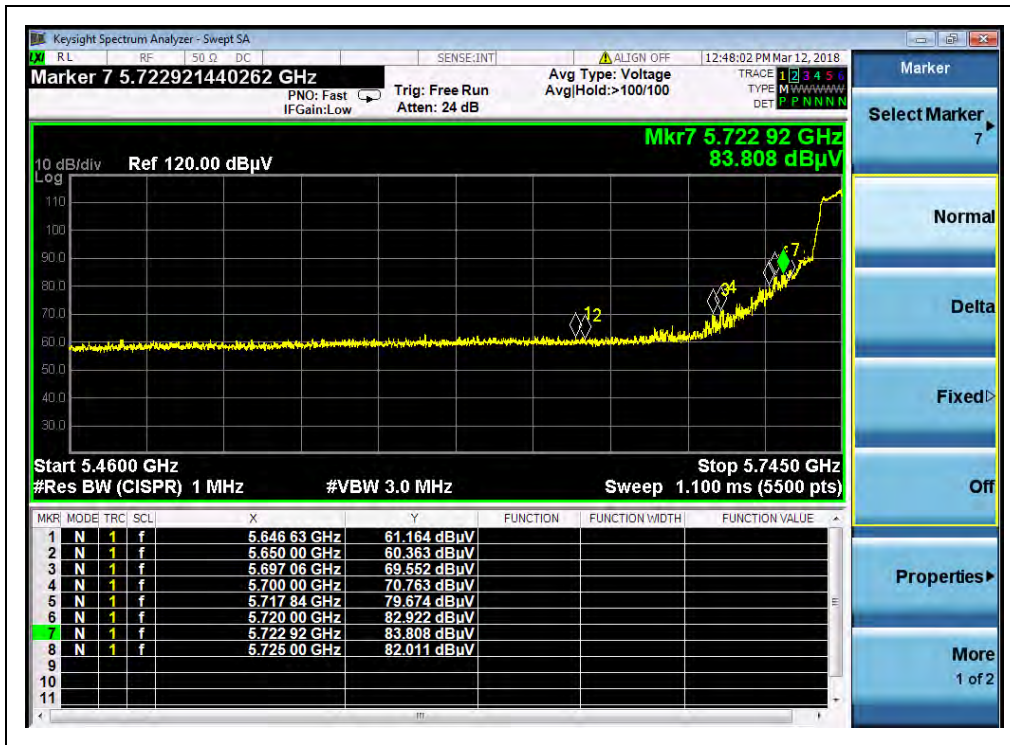
(Channel 100, AVG, 802.11a)



(Channel 142, PEAK, 802.11a)



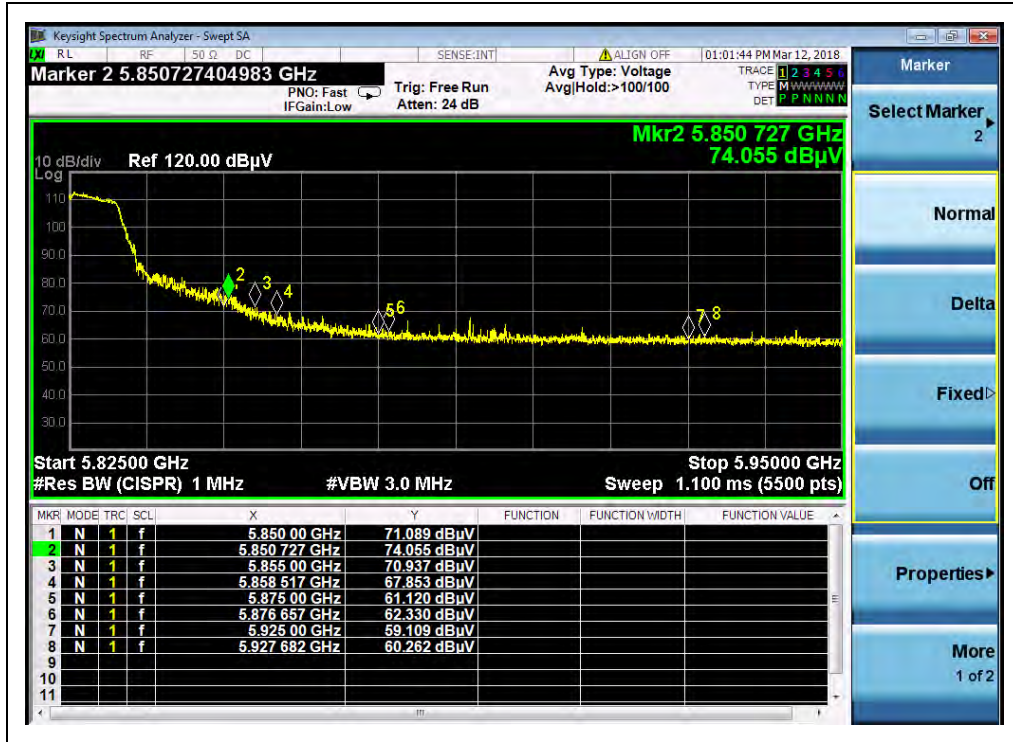
(Channel 142, AVG, 802.11a)



(Channel 149, PEAK, 802.11a)



(Channel 149, AVG, 802.11a)



(Channel 165, PEAK, 802.11a)



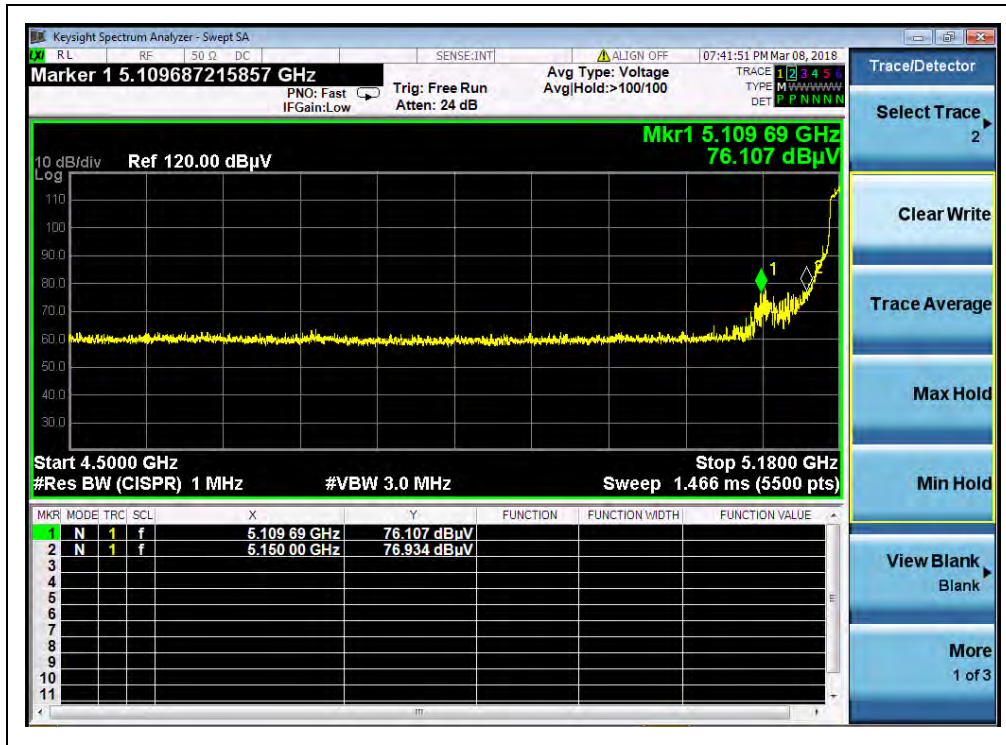
(Channel 165, AVG, 802.11a)

**802.11n (HT20) Test mode****A. Test Verdict:**

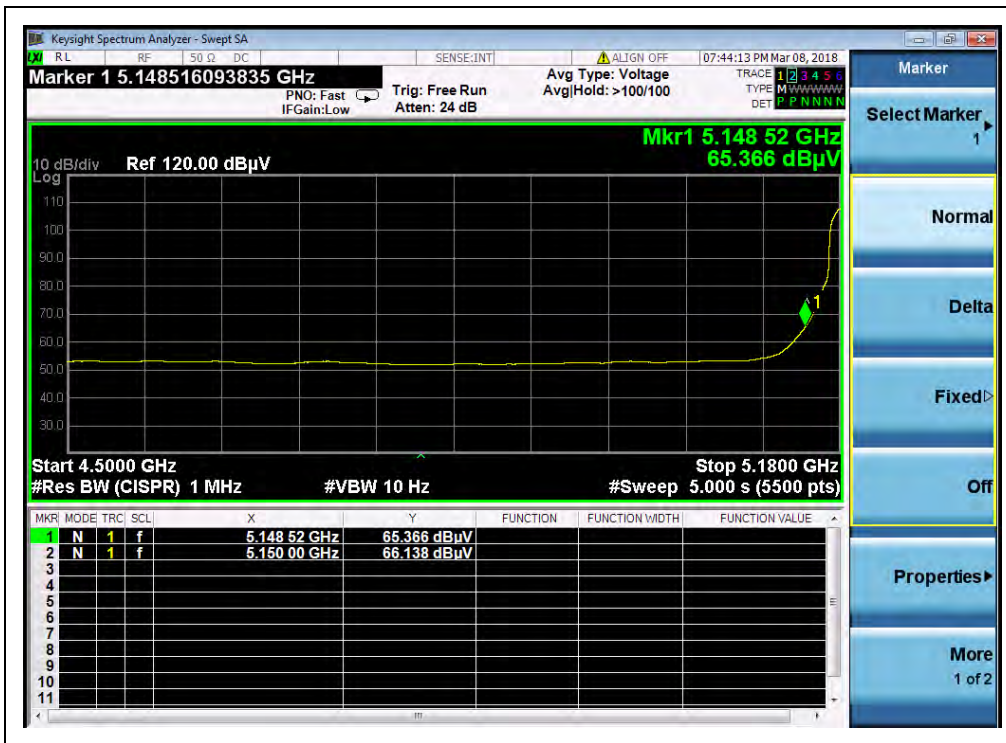
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
36	5109.69	PK	76.11	-50.65	32.11	57.57	74	PASS
36	5148.52	AV	65.37	-50.65	32.11	46.83	54	PASS
64	5352.54	PK	72.00	-50.65	32.11	53.46	74	PASS
64	5350.79	AV	59.35	-50.65	32.11	40.81	54	PASS
100	5465.83	PK	72.07	-50.65	32.11	53.53	74	PASS
100	5468.33	AV	60.88	-50.65	32.11	42.34	54	PASS
142	5726.57	PK	79.24	-50.65	32.11	60.70	74	PASS
142	5726.57	AV	67.95	-50.65	32.11	49.41	54	PASS
149	5724.06	PK	81.06	-50.65	32.11	62.52	120.09	PASS
149	5723.18	AV	68.88	-50.65	32.11	50.34	54	PASS
165	5850.39	PK	72.67	-50.65	32.11	54.13	121.34	PASS
165	5850.68	AV	57.53	-50.65	32.11	38.99	54	PASS



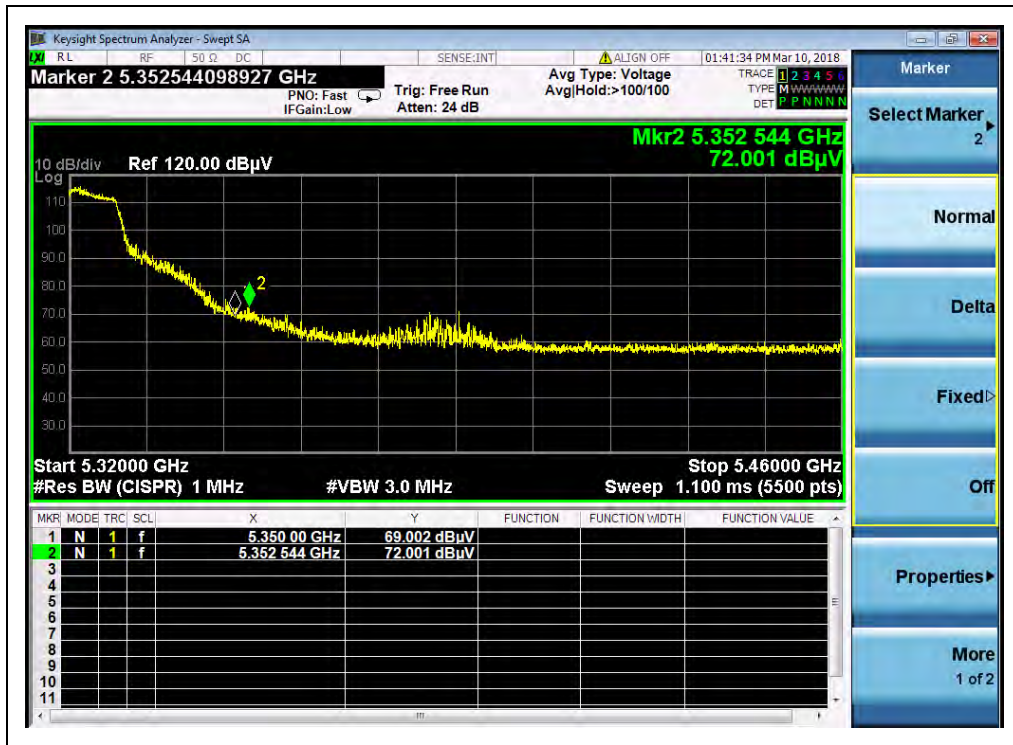
B. Test Plots:



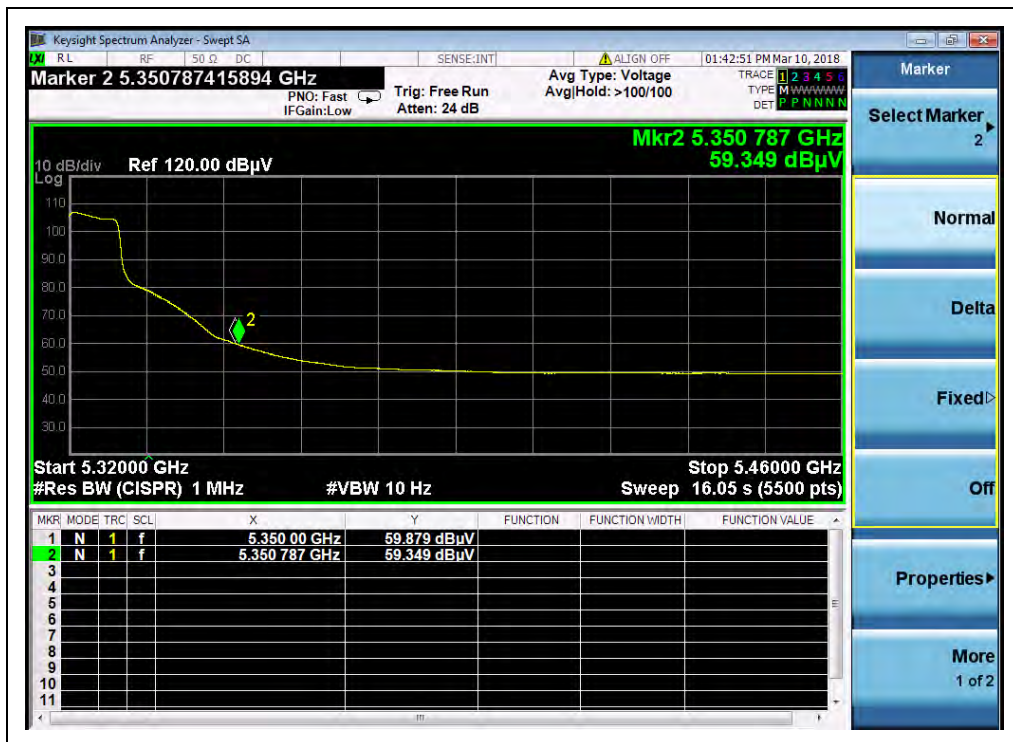
(Channel 36, PEAK, 802.11n (HT20))



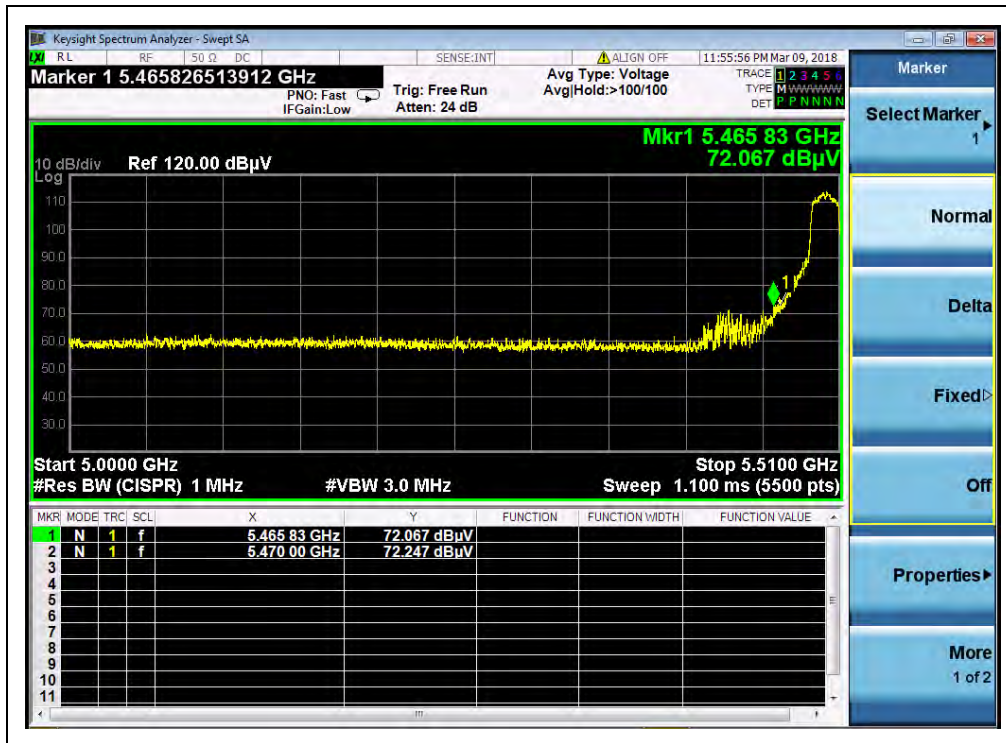
(Channel 36, AVG, 802.11 n (HT20))



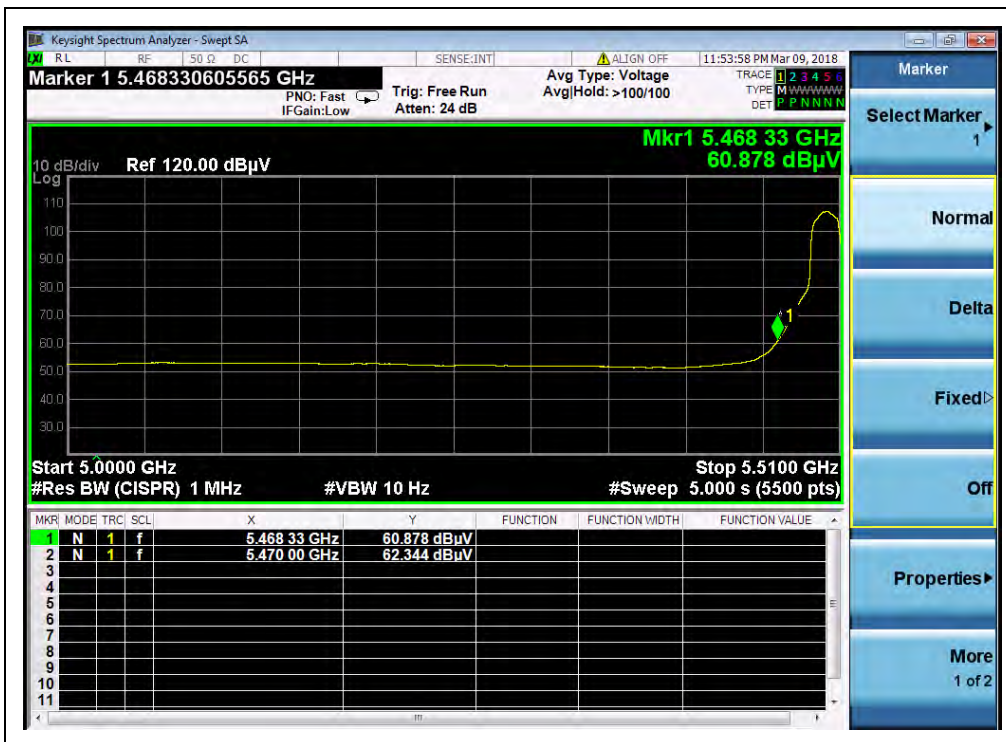
(Channel 64, PEAK, 802.11 n (HT20))



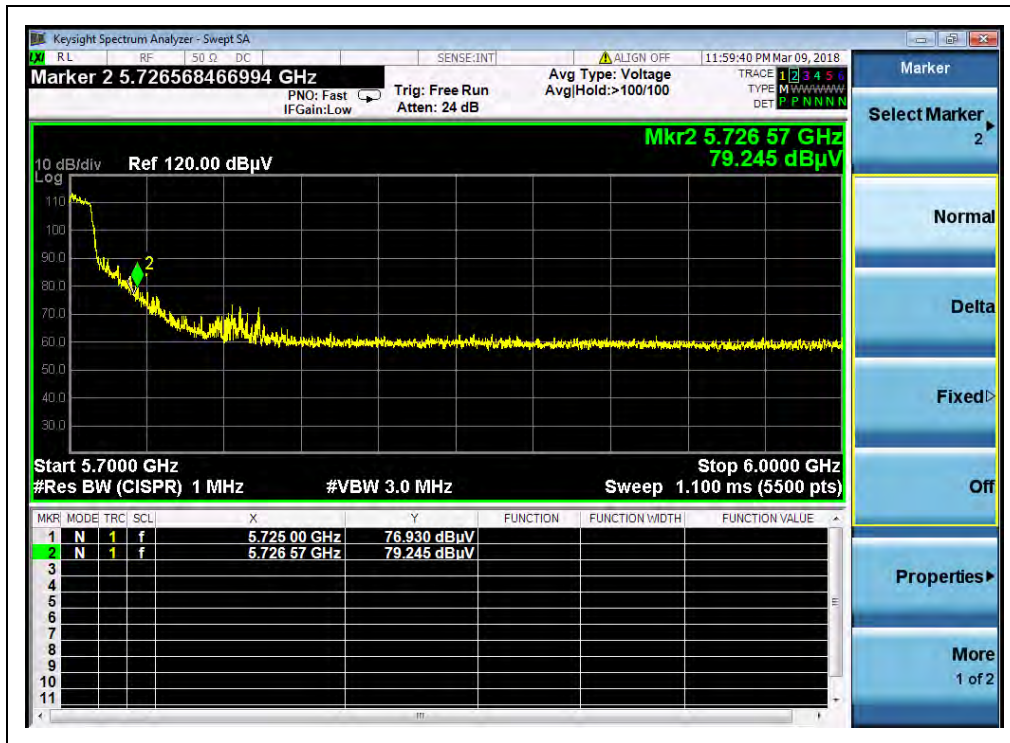
(Channel 64, AVG, 802.11n (HT20))



(Channel 100, PEAK, 802.11 n (HT20))



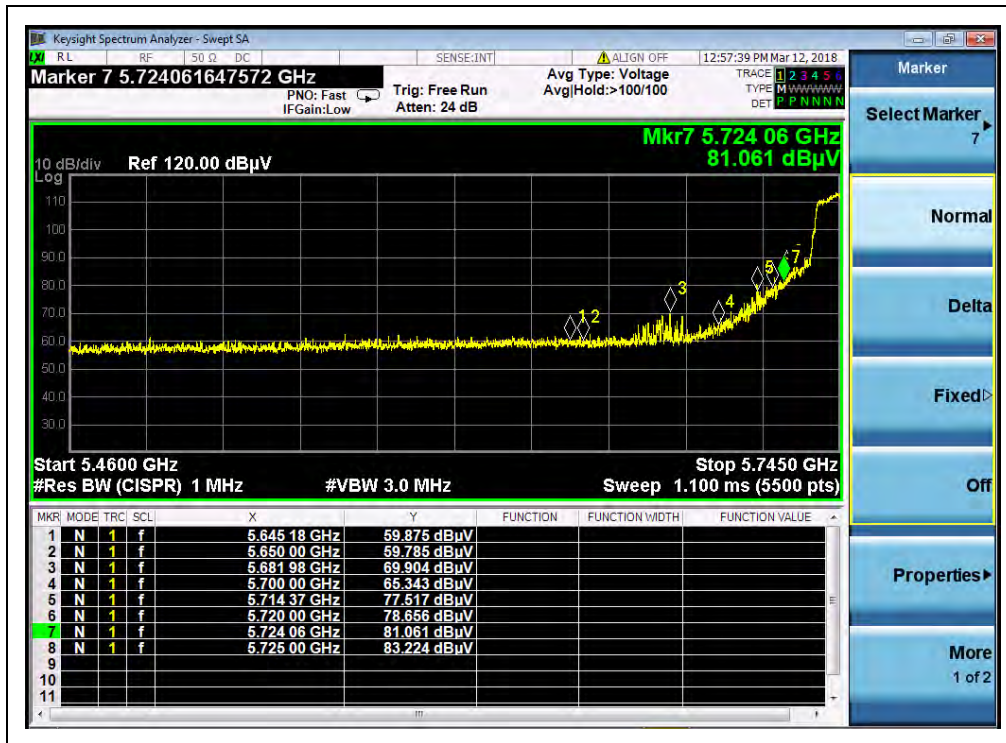
(Channel 100, AVG, 802.11n (HT20))



(Channel 142, PEAK, 802.11 n (HT20))



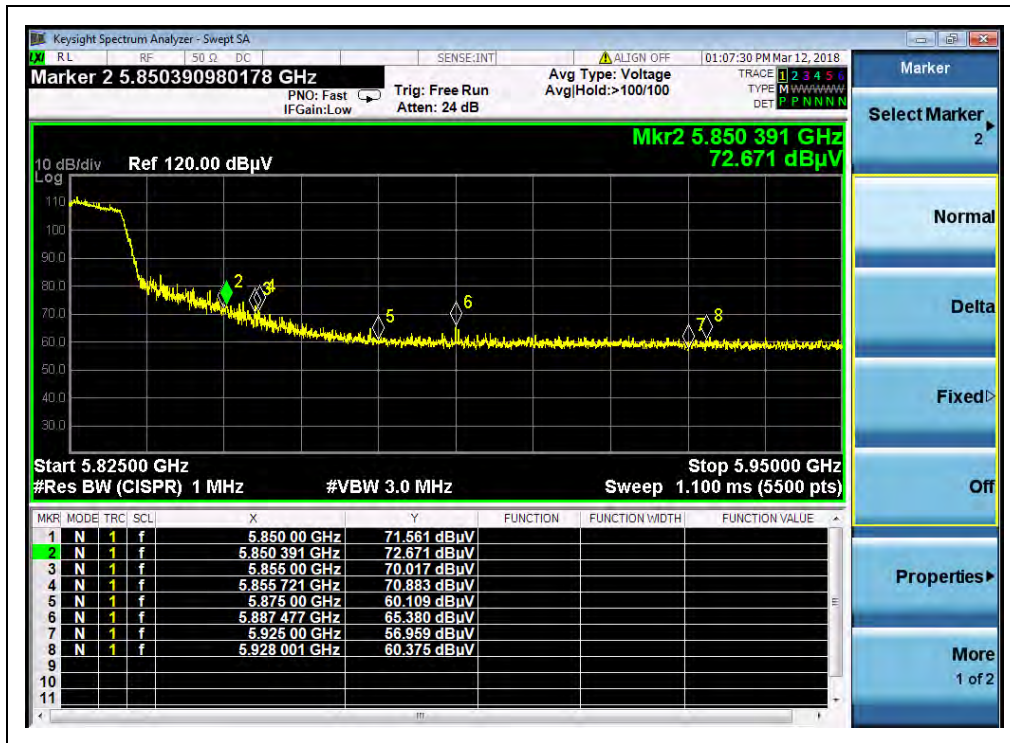
(Channel 142, AVG, 802.11n (HT20))



(Channel 149, PEAK, 802.11 n (HT20))



(Channel 149, AVG, 802.11n (HT20))



(Channel 165, PEAK, 802.11 n (HT20))



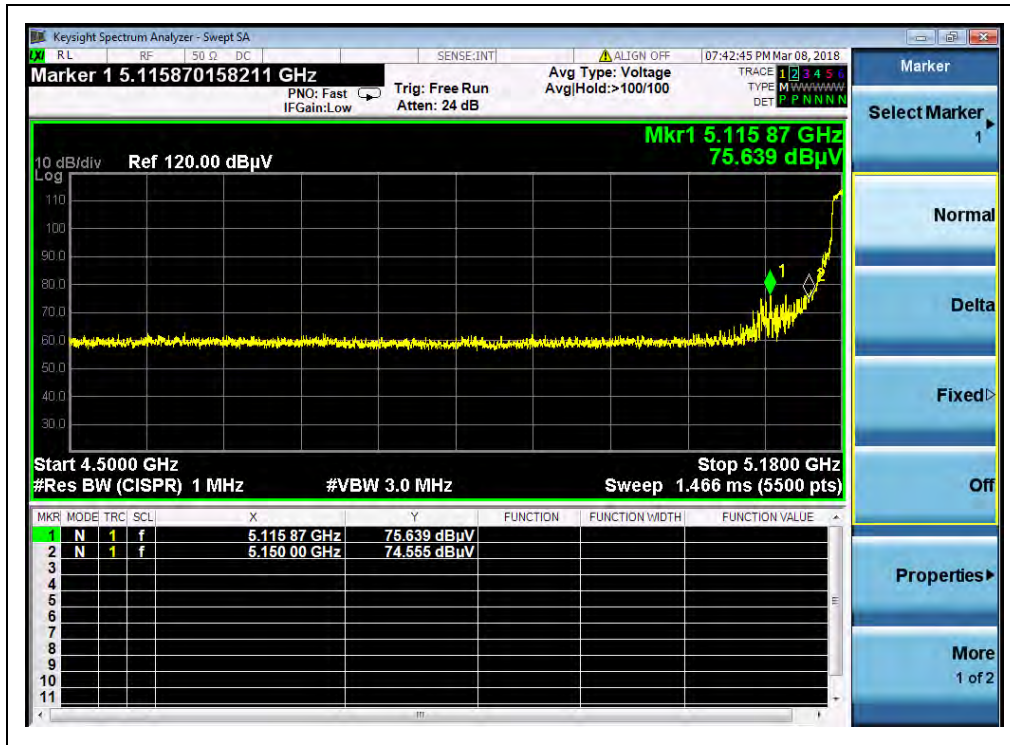
(Channel 165, AVG, 802.11n (HT20))

**802.11 ac (HT20) Test mode****A. Test Verdict:**

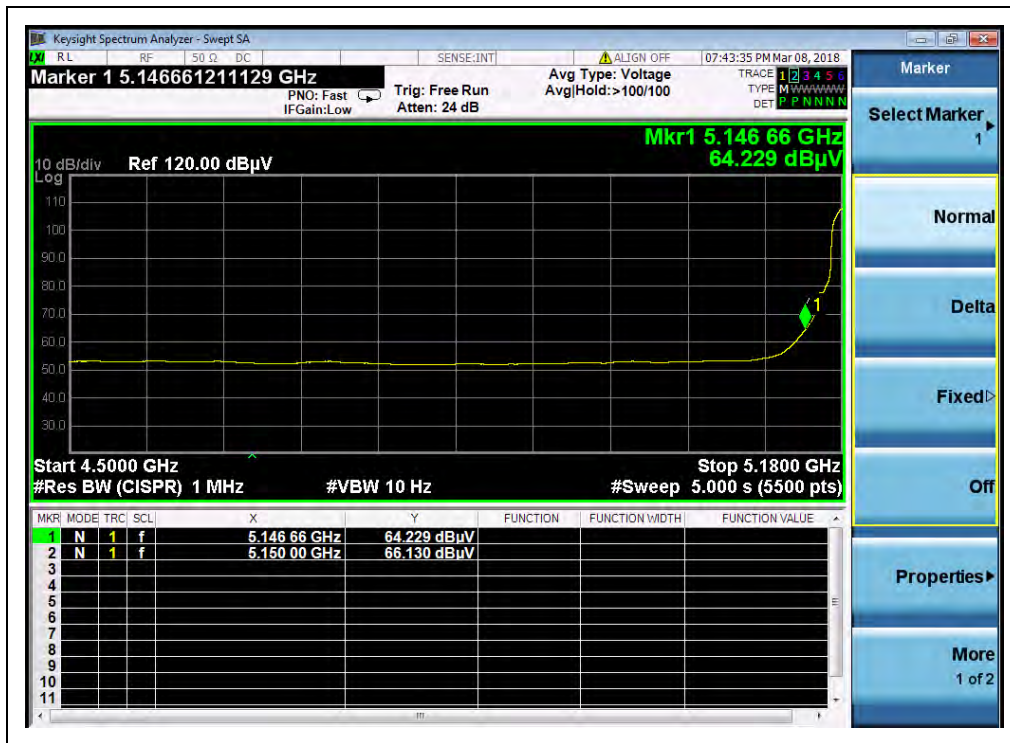
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
36	5115.87	PK	75.64	-50.65	32.11	57.1	74	PASS
36	5146.66	AV	64.23	-50.65	32.11	45.69	54	PASS
64	5355.37	PK	70.22	-50.65	32.11	51.68	74	PASS
64	5350.71	AV	59.51	-50.65	32.11	40.97	54	PASS
100	5468.15	PK	76.64	-50.65	32.11	58.10	74	PASS
100	5466.94	AV	60.22	-50.65	32.11	41.68	54	PASS
144	5726.35	PK	80.56	-50.65	32.11	62.02	74	PASS
144	5725.64	AV	66.45	-50.65	32.11	47.91	54	PASS
149	5723.39	PK	81.27	-50.65	32.11	62.73	118.56	PASS
149	5723.54	AV	68.96	-50.65	32.11	50.42	54	PASS
165	5850.66	PK	75.86	-50.65	32.11	75.86	120.72	PASS
165	5850.55	AV	57.19	-50.65	32.11	38.65	54	PASS



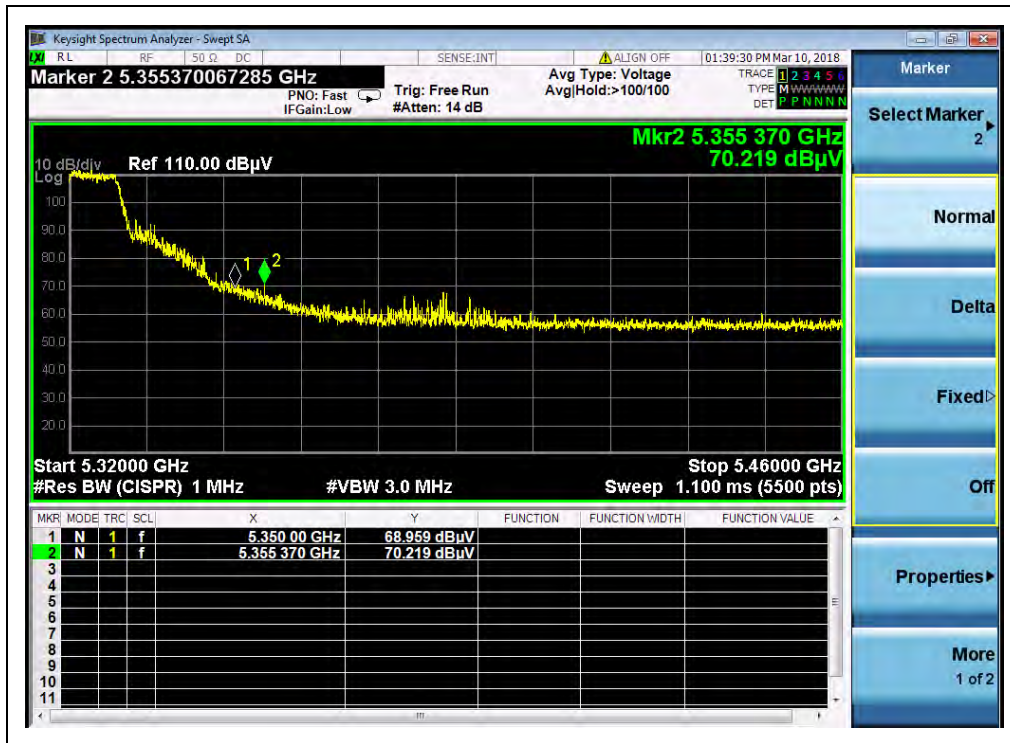
B. Test Plots:



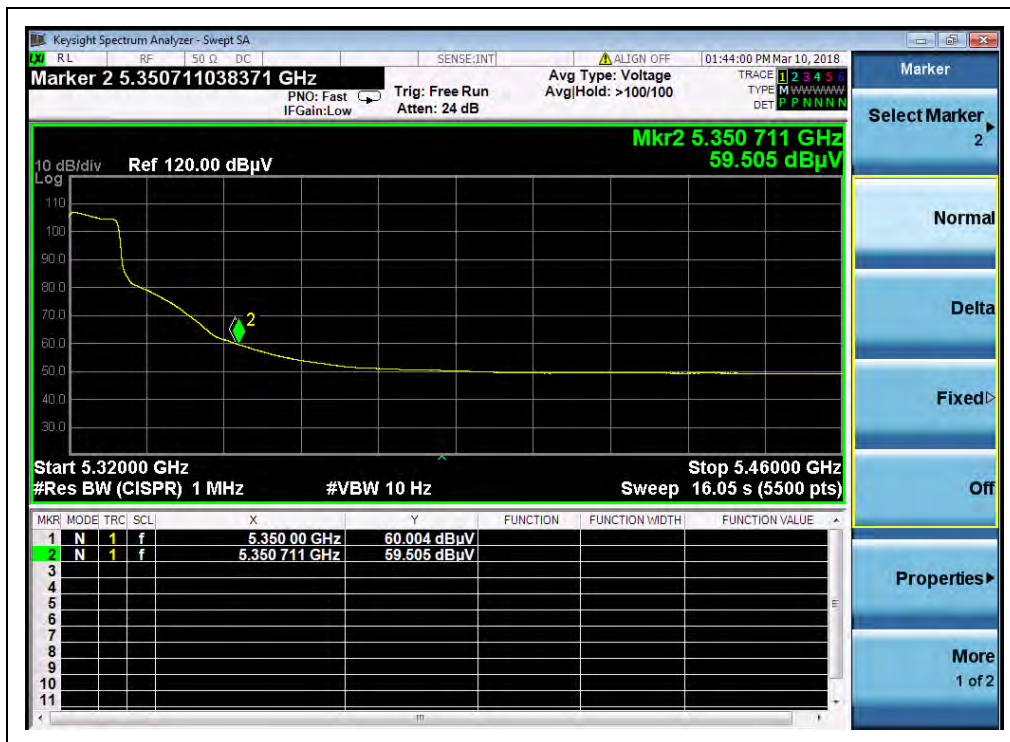
(Channel 36, PEAK, 802.11 ac (HT20))



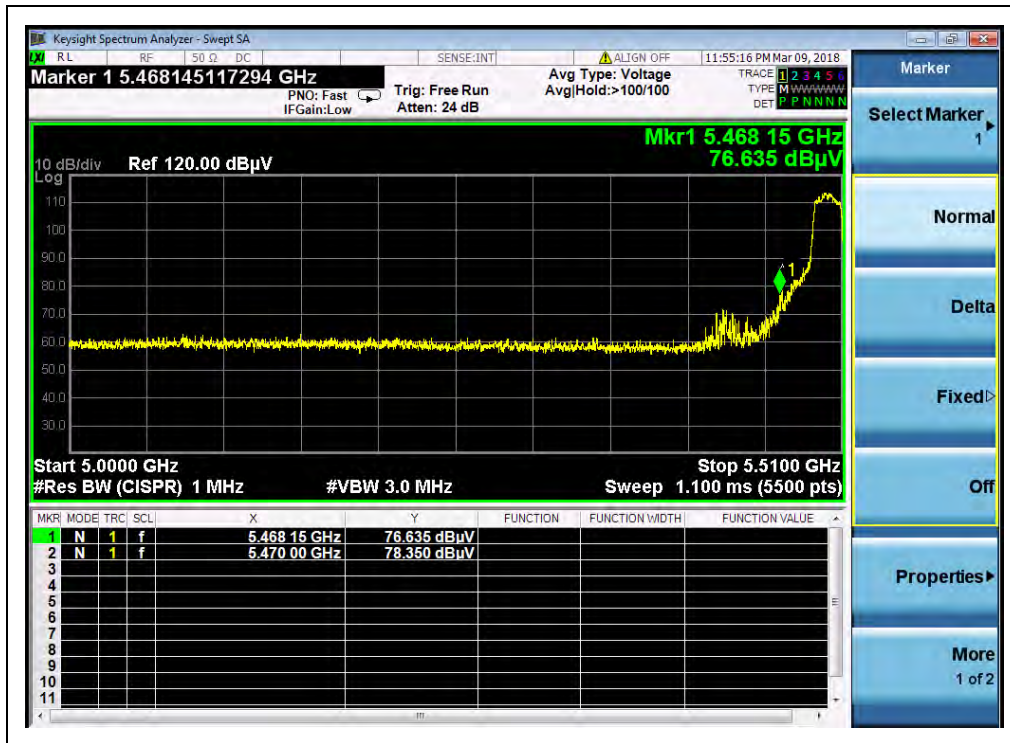
(Channel 36, AVG, 802.11 ac (HT20))



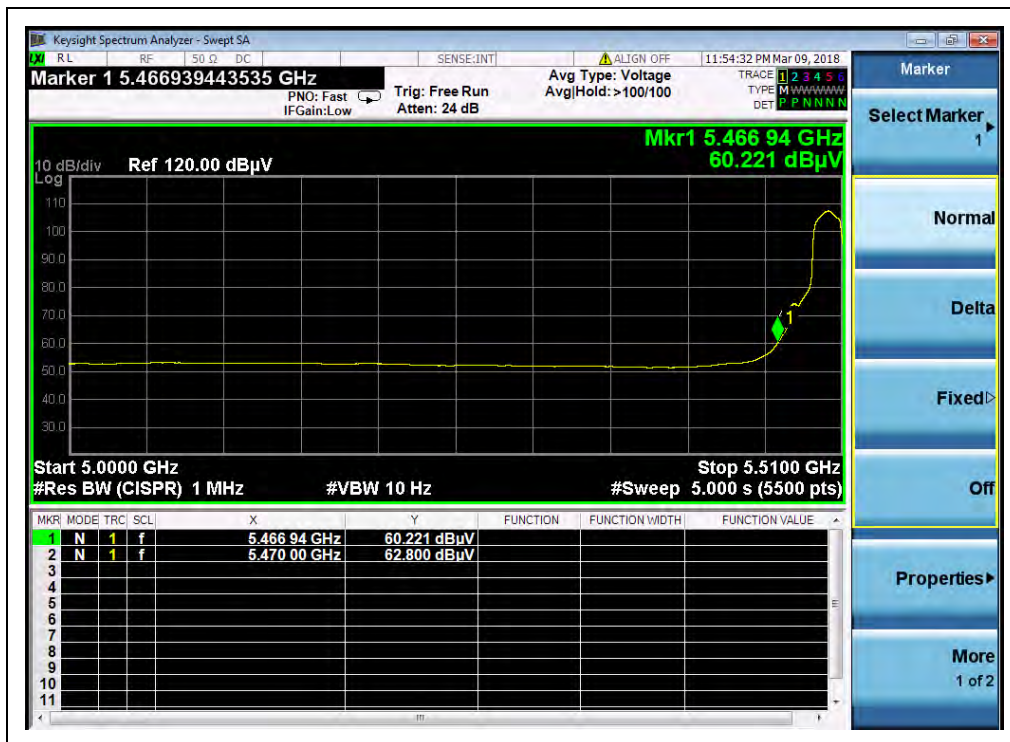
(Channel 64, PEAK, 802.11 ac (HT20))



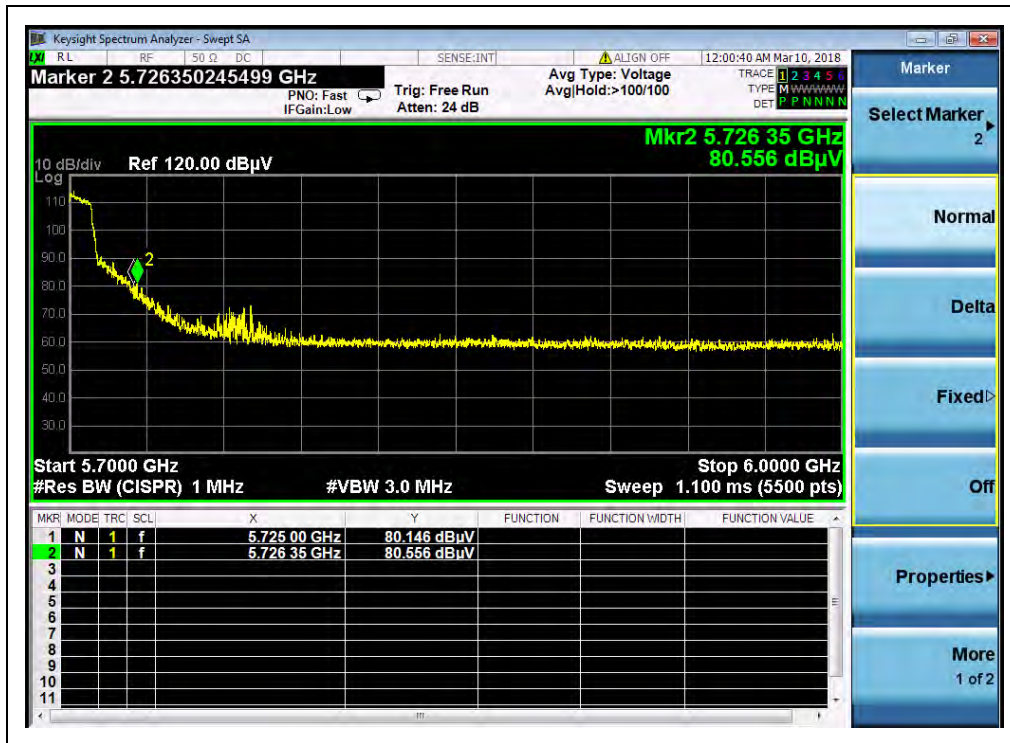
(Channel 64, AVG, 802.11 ac (HT20))



(Channel 100, PEAK, 802.11 ac (HT20))



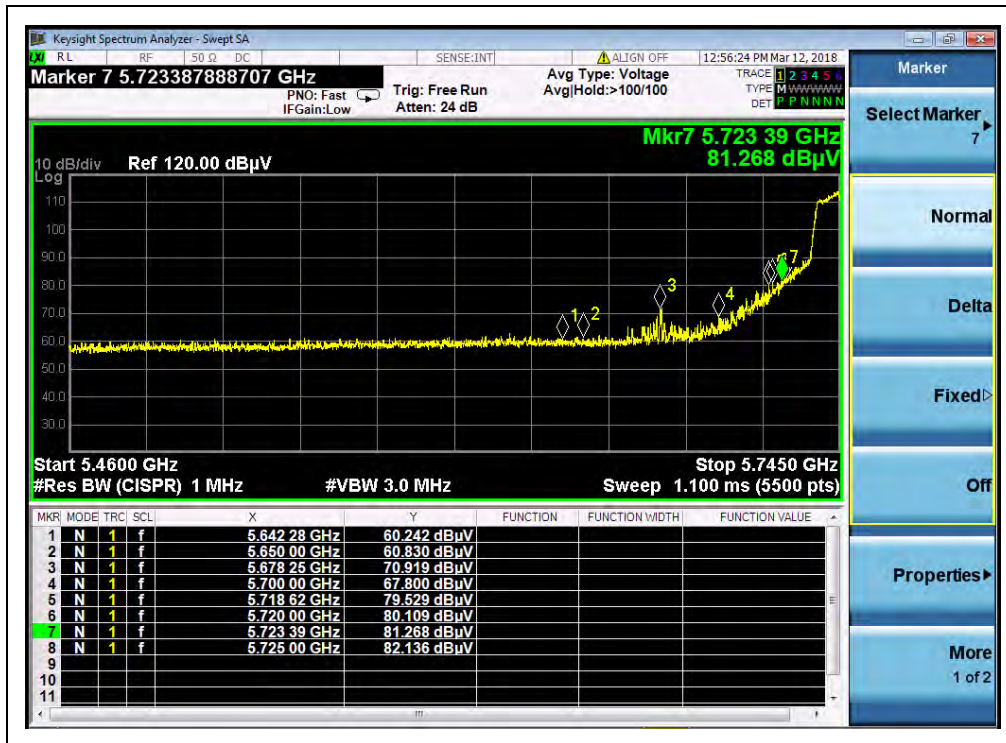
(Channel 100, AVG, 802.11 ac (HT20))



(Channel 144, PEAK, 802.11 ac (HT20))



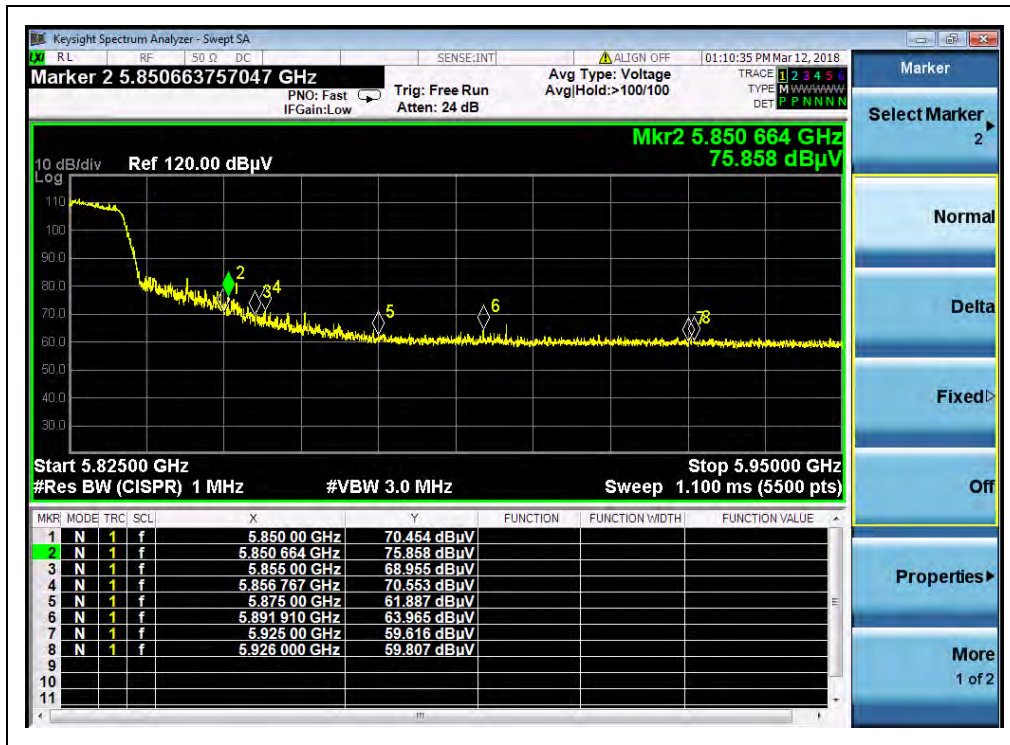
(Channel 144, AVG, 802.11 ac (HT20))



(Channel 149, PEAK, 802.11 ac (HT20))



(Channel 149, AVG, 802.11 ac (HT20))



(Channel 165, PEAK, 802.11 ac (HT20))

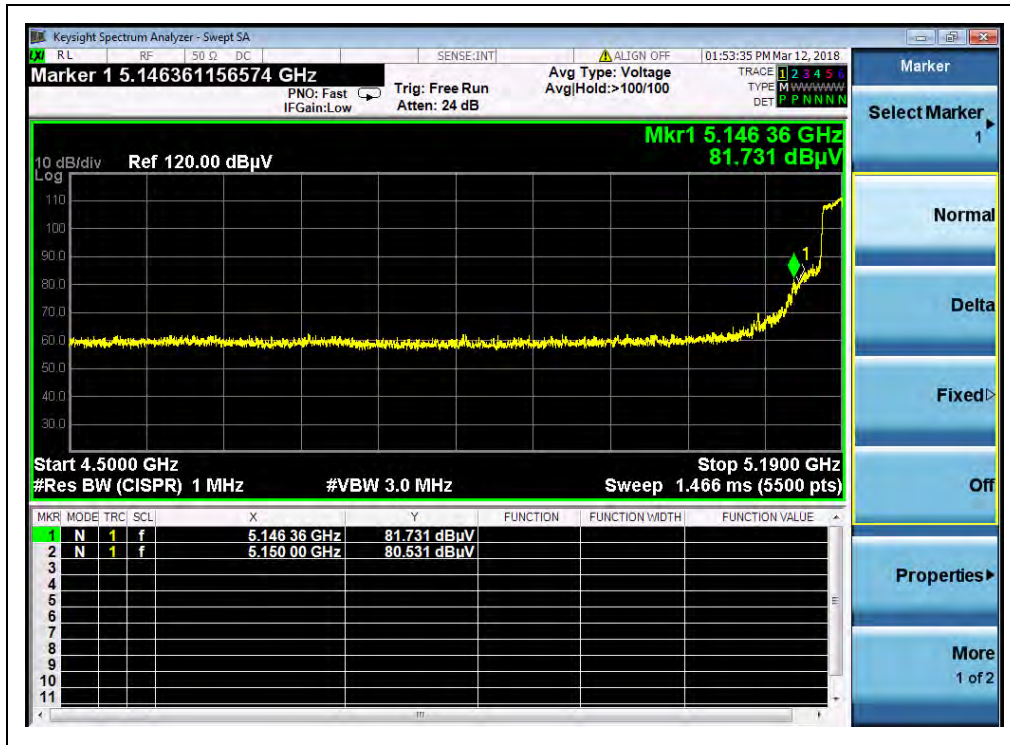


(Channel 165, AVG, 802.11ac (HT20))

**802.11n (HT40) Test mode****A. Test Verdict:**

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
38	5146.36	PK	81.73	-50.65	32.11	63.19	74	PASS
38	5146.36	AV	66.42	-50.65	32.11	47.88	54	PASS
62	5355.47	PK	79.50	-50.65	32.11	60.96	74	PASS
62	5350.86	AV	66.76	-50.65	32.11	48.22	54	PASS
102	5466.01	PK	78.21	-50.65	32.11	59.67	74	PASS
102	5467.68	AV	67.92	-50.65	32.11	49.38	54	PASS
134	5729.73	PK	74.82	-50.65	32.11	56.28	74	PASS
134	5727.42	AV	60.15	-50.65	32.11	41.61	54	PASS
151	5723.23	PK	82.03	-50.65	32.11	63.49	118.19	PASS
151	5723.56	AV	67.92	-50.65	32.11	49.38	54	PASS
159	5851.07	PK	66.04	-50.65	32.11	47.50	119.79	PASS
159	5851.10	AV	54.90	-50.65	32.11	36.36	54	PASS

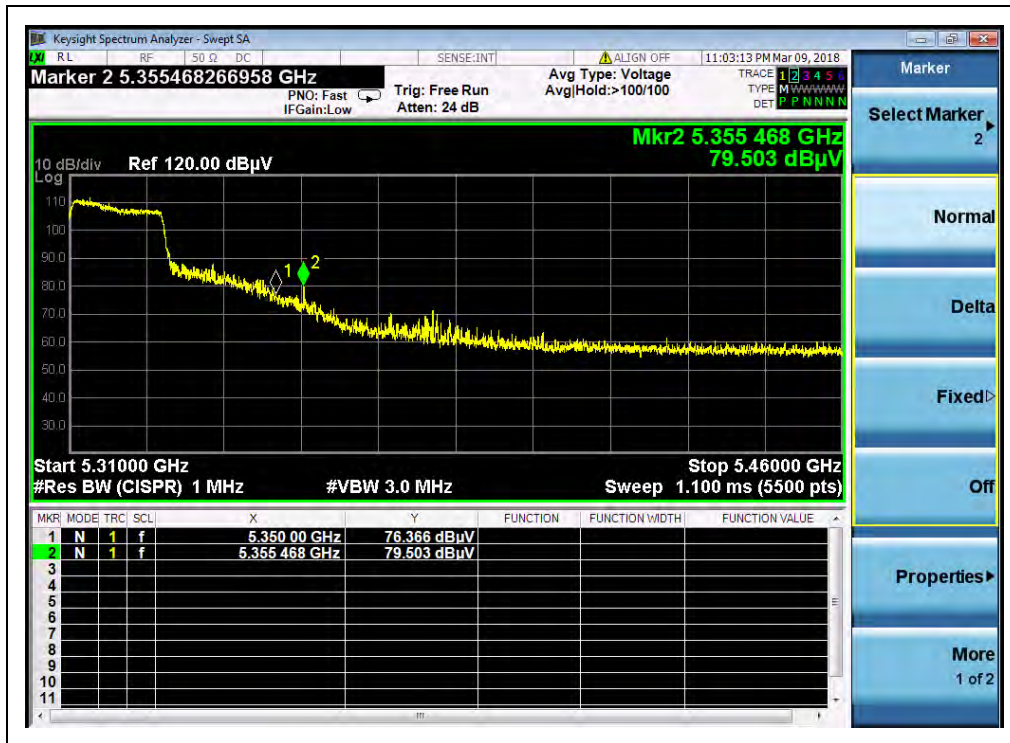
B. Test Plots:



(Channel 38, PEAK, 802.11n (HT40))



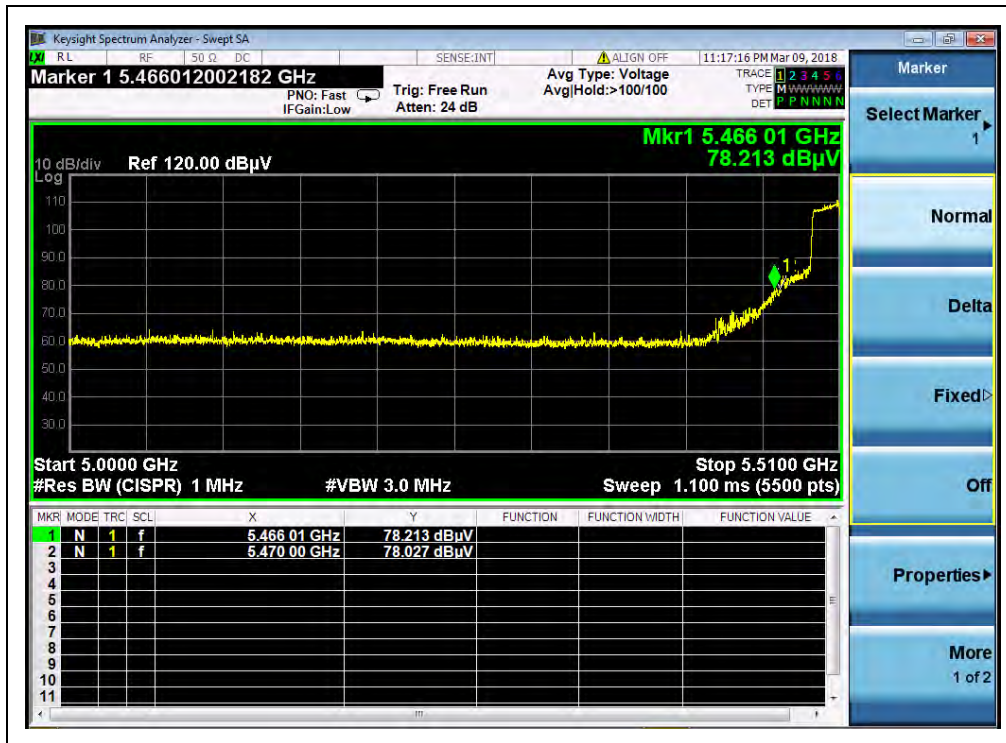
(Channel 38, AVG, 802.11n (HT40))



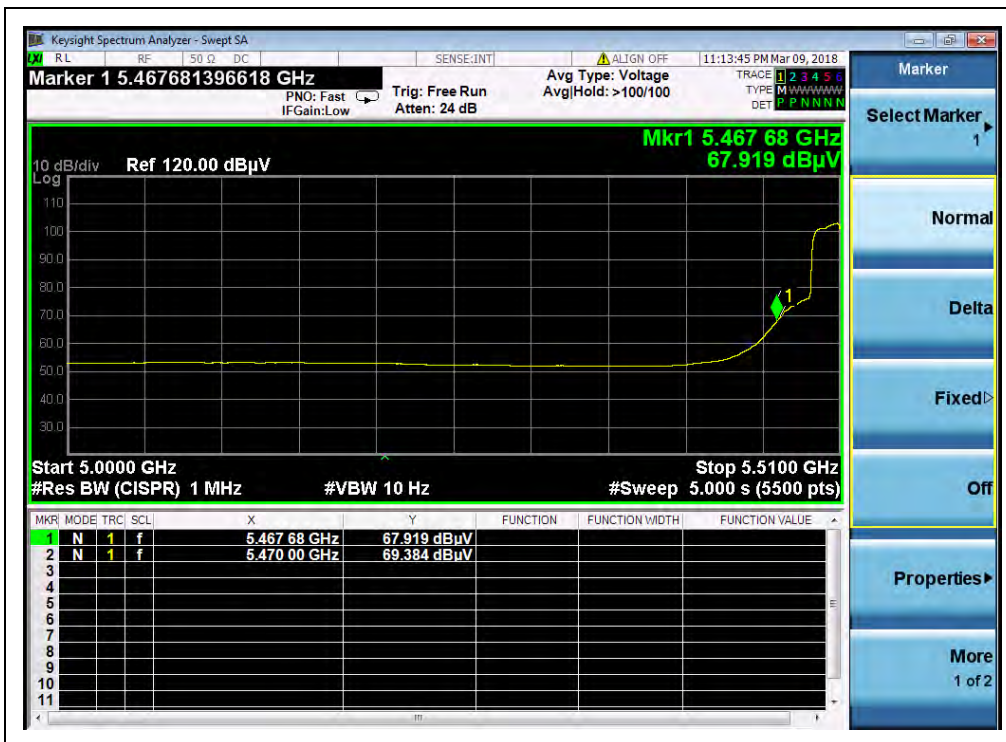
(Channel 62, PEAK, 802.11n (HT40))



(Channel 62, AVG, 802.11n (HT40))



(Channel 102, PEAK, 802.11n (HT40))



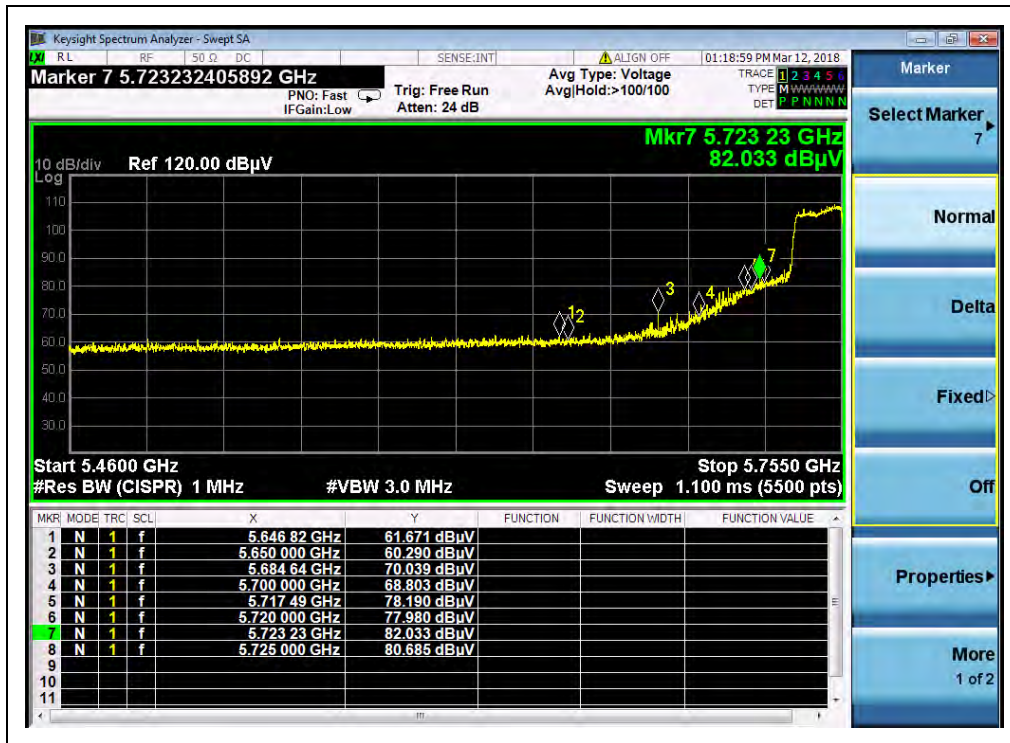
(Channel 102, AVG, 802.11n (HT40))



(Channel 134, PEAK, 802.11n (HT40))



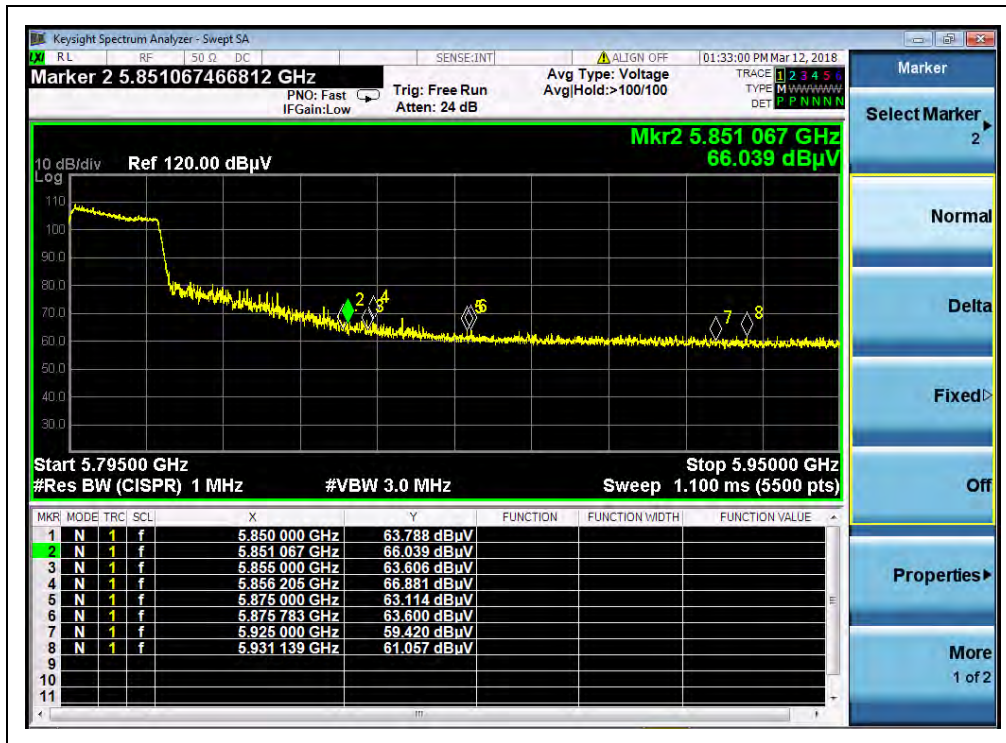
(Channel 134, AVG, 802.11n (HT40))



(Channel 151, PEAK, 802.11n (HT40))



(Channel 151, AVG, 802.11n (HT40))



(Channel 159, PEAK, 802.11n (HT40))



(Channel 159, AVG, 802.11n (HT40))

**802.11 ac (VHT40) Test mode****A. Test Verdict:**

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
38	5146.61	PK	81.01	-50.65	32.11	62.47	74	PASS
38	5147.49	AV	67.91	-50.65	32.11	49.37	54	PASS
62	5352.23	PK	78.44	-50.65	32.11	59.90	74	PASS
62	5350.86	AV	67.39	-50.65	32.11	48.85	54	PASS
102	5462.95	PK	77.73	-50.65	32.11	59.19	74	PASS
102	5467.96	AV	67.61	-50.65	32.11	49.07	54	PASS
134	5738.31	PK	74.60	-50.65	32.11	56.06	74	PASS
134	5726.76	AV	62.34	-50.65	32.11	43.80	54	PASS
151	5724.52	PK	81.75	-50.65	32.11	63.21	121.13	PASS
151	5723.67	AV	67.97	-50.65	32.11	49.43	54	PASS
159	5850.98	PK	68.40	-50.65	32.11	49.86	119.99	PASS
159	5850.84	AV	54.54	-50.65	32.11	36.00	54	PASS